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ABSTRACT

This document is a compilation of theses completed in the areas of health, physical education, recreation and allied areas for the year 1967. It is divided into two parts: an index and theses abstracts. The index contains a cross reference for all listings and the section on theses abstracts contains the listings and abstracts of unpublished masters and doctoral theses for 60 institutions offering graduate programs in health, physical education, recreation and allied areas. There is a total of 749 listings and abstracts to masters and doctoral theses. (HB)

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1968

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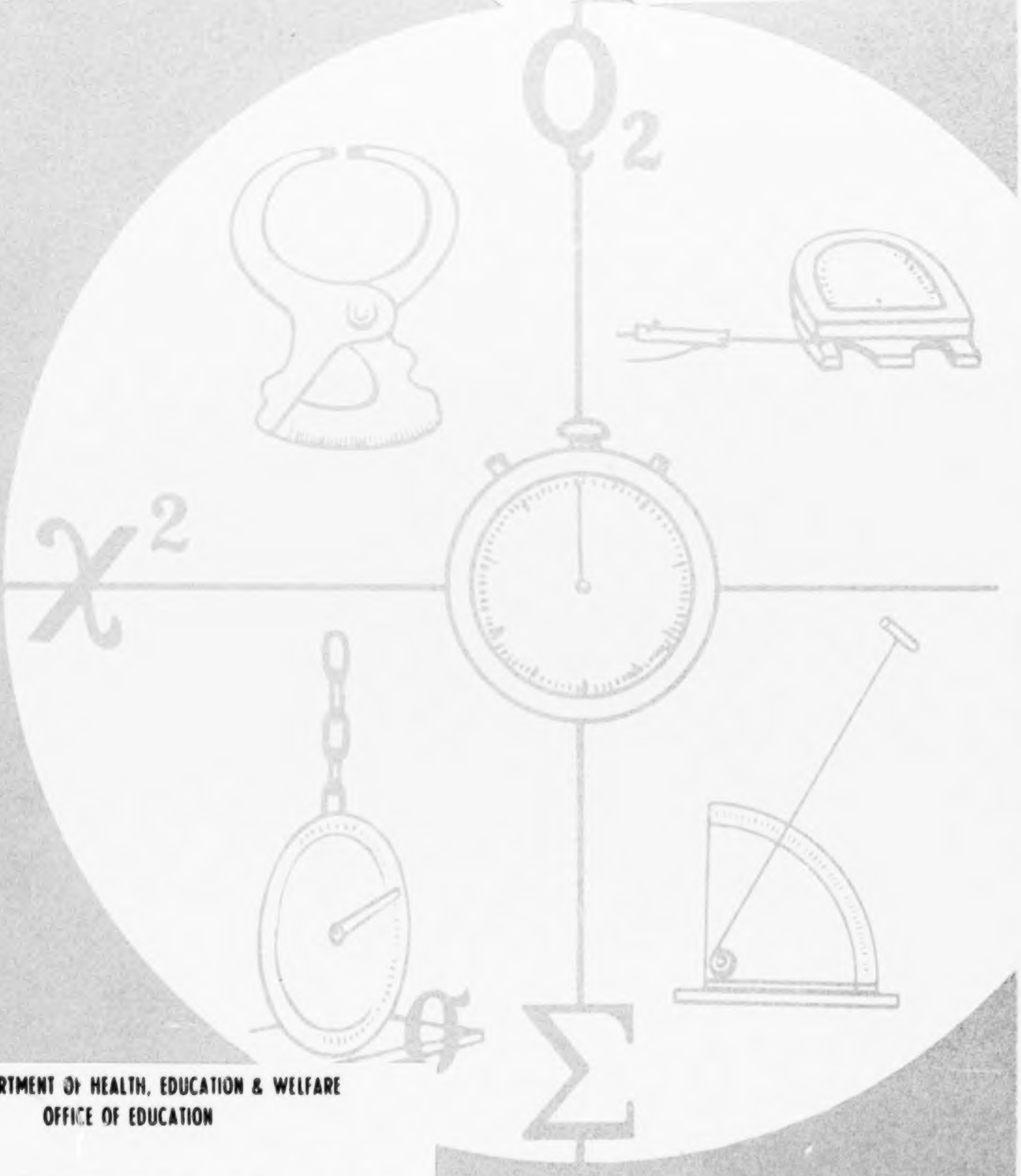

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Volume 10 1968 EDITION

covering research completed in 1967

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a department of the National Education Association,
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INTRODUCTION

This compilation lists theses completed in the areas of health, physical education, recreation, and allied fields during 1967. The listings include unpublished master's and doctor's theses for 60 institutions offering graduate programs of health education, physical education, recreation, and allied areas. Institutions reporting are listed on page 143. Many references are accompanied by abstracts of the research and all are numbered in alphabetical order according to the institution. Names of institutional representatives sending in these abstracts are indicated in parentheses after the name of the institution; names of major professors are in parentheses after each reference.

The index contains cross references for all the listings. References are arranged under the subject headings, which are in alphabetical order. Instructions for using the index are given at the top of page 1.

Universities and colleges are encouraged to submit abstracts of theses completed at their institutions in the year 1968 for inclusion in the next issue of Completed Research. Material should be sent to Robert N. Singer, Illinois State University.

The bibliographical listing of published research, citing articles published in periodicals reviewed by members of the Committee for Completed Research, which has appeared in previous volumes, is not included in this 1968 edition. Unfortunately, the edited and indexed cards were lost in the mail in transit to the printer; since these were the original bibliographical cards prepared by the committee members, it was impossible to reconstruct their work for publication. Their efforts in behalf of the profession are hereby acknowledged with regrets that their contribution will not be available for use this year.

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THESES ABSTRACTS

University of Alberta, Edmonton, Alberta, Canada (R. B. J. Macnab)

1. BANFIELD, Terry J. Reliability estimation with respect to strength measurement. M.A. in Physical Education, 1967. 61 p. (R. B. Alderman)

2. COLLINS, Kevin A. The attitudes toward and interests in physical activity of Western Australian urban secondary school students. M.A. in Physical Education, 1967. 140 p. (M. L. Howell)

3. COX, Allan E. An historical analysis of competitive rubber ball games in Meso-america, Arizona and the Greater Antilles. M.A. in Physical Education, 1967. 209 p. (M. L. Howell)

4. DOOLING, Peter J. An explorative study of factors affecting outdoor recreation demand of the Edmonton adult population, Alberta, Canada. M.A. in Physical Education, 1967. 170 p. (R. G. Glassford)

5. JACKSON, Patricia. A rating scale for discriminating relative performance of skilled female volleyball players. M.A. in Physical Education, 1967. 64 p. (P. L. Austin)

6. KERESTES, A. Physical education and sport in Hungary. M.A. in Physical Education, 1967. 282 p. (M. L. Howell)

7. KING, Peter G. A comparison of heart rate and oxygen uptake responses to work performed on the treadmill and bicycle ergometer. M.Sc. in Physical Education, 1967. 81 p. (R. B. J. Macnab)

8. KORCHINSKY, Nestor N. Qualifications, responsibilities, and programs of senior high school physical education teachers in the province of Alberta, Canada. M.A. in Physical Education, 1967. 135 p. (W. D. Smith)

9. LINDSAY, Peter L. Literary evidence of physical education among the ancient Romans. M.A. in Physical Education, 1967. 243 p. (M. L. Howell)

10. MORRISON, Donald H. A rationale for the development of comparative physical education. M.A. in Physical Education, 1967. 153 p. (M. L. Howell)

11. O'BRYAN, Maureen. Attitudes of males towards selected aspects of physical education. M.A. in Physical Education, 1967. 86 p. (P. L. Austin)

12. PADDICK, Robert J. The nature and place of a field of knowledge in physical education. M.A. in Physical Education, 1967. 80 p. (R. B. Alderman)

13. PALMER, Denise. Sport and games in the art of early civilizations. M.A. in Physical Education, 1967. 351 p. (M. L. Howell)

14. PETRIE, Brian M. Gas chromatography in the analysis of selected cardiopulmonary parameters. M.A. in Physical Education, 1967. 122 p. (R. B. J. Macnab)

15. RYAN, Robin R. A modification of the test of maximal voluntary ventilation based upon the results of three experiments. M.Sc. in Physical Education, 1967. 109 p. (R. B. J. Macnab)

16. SALTER, Michael A. Games and pastimes of the Australian aboriginal. M.A. in Physical Education, 1967. 203 p. (M. L. Howell)

17. SEMOTIUK, Darwin M. The attitudes toward and interests in physical activity of Edmonton secondary school students. M.A. in Physical Education, 1967. 231 p. (M. L. Howell)

18. STAPLES, Richard Brian. The effect of circuit-training on strength and cardiovascular endurance. M.A. in Physical Education, 1967. 85 p. (R. G. Glassford)

Arkansas State University, State University, Arkansas (J. P. Hosinski)

19. DAWSON, James. A study of the life of Stan "The Man" Musial. M.S.E., 1967. 84 p. (W. D. Black)

20. SNYDER, Ellen. An investigation to determine the relationship between physical fitness and social adjustment in junior high girls. M.S.E., 1967. 36 p. (W. D. Black)

21. SUGG, William Jack. An historical study of competitive swimming in the State of Arkansas. M.S.E., 1967. 54 p. (J. P. Hosinski)

The development and status of competitive swimming was traced with an attempt to pinpoint the inception of the program, the stage of rapid growth, and principal leaders, and to note major factors motivating interest in the sport.

22. THOMPSON, Martha Kirksey. An investigation of the leisure-time activities of instructional faculty of Arkansas State College. M.S.E., 1967. 66 p. (J. P. Hosinski)

Data was collected from 50 percent of the faculty and analyzed using percentage comparisons and a chi-square formula. Results indicated that the division of military science personnel pursued leisure more than any other group. The fine arts faculty pursued leisure least and the sedentary activities of reading, conversation, and music listening were the most popular activities.

University of Arkansas, Fayetteville, Arkansas (G. C. Moore)

23. ATHA, Daniel R. A study of the smoking habits and tobacco knowledge of ninth grade students in Washington County, Arkansas. Ed.D. in Physical Education, 1968. 61 p. (G. C. Moore)

Personal data were obtained on the Thompson smoking and tobacco knowledge test to determine if a significant difference existed between parental smoking habits of smoking and nonsmoking students. The subjects were 1027 ninth grade boys and girls. A significant difference was found between the smoking and nonsmoking students on the total test score and on the physiological section of the Thompson smoking and tobacco knowledge test. The two groups were not significantly different on the historical and sociological section scores. Chi-square calculations showed parents of smoking students to be more likely also to be smokers. Other results were: the percentage of smokers was found to be 13.5 percent; with males 19.5 percent, females 6.6 percent; the average age and grade smoking students indicated they started smoking was 12.7 years of age and in the seventh grade; average range of cigarettes smoked was 5 to 9 per day; and primary reasons given for beginning smoking were that parents smoked and smoking was an accepted practice in their social group.

24. DEVASIER, James A. Opinions expressed by members of selected civic organizations in Arkansas regarding health, physical education and recreation. Ed. D. in Physical Education, 1967. 126 p. (G. C. Moore)

The sample was composed of 192 members of four civic clubs (Lions, Rotary, Kiwanis, Business & Professional Women) who in the opinion of the club president were influential members of their organizations. A questionnaire was constructed relating to current issues in physical education, athletics, intramurals, health, and recreation. Ninety-one percent of the questionnaires were returned. Directions were to agree or disagree with each statement; scoring was on a five-point scale. Each score was compared in relation to the variables in the study utilizing chi-square. Conclusions were: there was more agreement than disagreement with generally accepted concepts; the most controversial areas were recreation and athletics; significant differences in opinion existed in relation to geographic area, athletic classification, town size, and civic club membership.

25. DUNHAM, Paul L. The effect of serial- versus sequence-practice on performance level. Ed. D. in Physical Education, 1968. 55 p. (G. C. Moore)

Forty right-handed male high school volunteers performed one of 4 different orders of practice using a pursuit rotor. The subjects following the serial order of practice alternated hands until each hand had performed 10 trials. The sequence-order group performed 10 trials using one hand followed by 10 trials with the other. Analysis of variance was used to analyze the relationships between the orders of practice and the preferred and the non-preferred hand groups. Total time on target on the pursuit rotor was the criterion score. There was no significant difference between performance level obtained by subjects employing a serial order of practice and those performing sequence ordering of practice.

26. FULLER, Daniel R. Construction of a family life knowledge test and the relationship of selected factors to the test scores. Ed. D. in Physical Education, 1967. 157 p. (G. C. Moore)

The purposes of the study were: (1) to construct a valid, reliable test which would measure a college freshman's knowledge of family life, and (2) to investigate the relationship between 14 selected factors and family life knowledge. A reliable and valid multiple choice item test was constructed of 77 items consisting of 9 parts: reproduction, pregnancy and childbirth; venereal diseases; heredity; sexual needs and hygiene; infant care and parenthood; dating, courtship, and engagement; marriage; family economics; and characteristics of the American family. The test was administered to 602 college freshman men and women in 5 selected colleges in Arkansas. An analysis of covariance indicated only one significant relationship among the 14 variables - between family life knowledge and academic ability.

27. HOLT, Hansford E. A comparison of the academic achievement of seventh grade boys participating in a morning athletic program and boys participating in an afternoon athletic program. M. Ed. in Physical Education, 1968. 41 p. (G. C. Moore)

The subjects were divided into 2 athletic groups and one nonathletic group. The athletic groups were composed of 31 boys on the track squad, divided into morning or afternoon practice groups equated as to grade point average and motor ability (using McCloy's general motor capacity test). The nonathletic group consisted of 29 boys not in the track program. The experimental program covered a six week period in which morning and afternoon practice periods were kept as nearly alike as possible. The grade-point averages were determined for that 6-week period at the conclusion of the program. A comparison of the means by t ratio showed no significant difference between the grade-point averages of morning and afternoon groups. Both athletic groups considered as a whole had significantly higher grade-point averages than the nonathletic group.

28. KRAKOW, Janet L. A comparison of the sport participation and interest of students attending three types of schools. M. Ed. in Physical Education, 1968. 56 p. (G. C. Moore)

The purpose of the study was to determine and compare the sport interests and participation of students at 3 types of schools: Northwest Arkansas Supplementary Education Center, Sequoyah Polytechnic Vocational School, and selected Fayetteville junior high school students. Students were asked to check participation, interest, and if they would participate if the activity were available to them. Twenty-five sport activities were listed including recreational, individual, and team activities. Conclusions were: boys with varying academic interests also have varying recreational interests. The boys at the Northwest Arkansas Supplementary Education Center consistently ranked recreational sports highest while boys at the public schools and vocational school were more interested in team competitive activities; swimming, wrestling, and baseball were high in participation at all three schools by the boys, and girls rated swimming and basketball highest in participation.

29. SIMPSON, E. LeRoy. The influence of warm-up upon exercise heart rate at three age levels. Ed. D. in Physical Education, 1968. 71 p. (G. C. Moore)

The purpose of the study was to compare, for three different age groups (N=10), the effect of formal warm-up, informal warm-up, and non-warm-up on terminal heart rate during a standard exercise on the bicycle ergometer. The three age levels were junior high school, college, and adult. Formal warm-up was a 5-minute bicycle ride at a specified work load and informal warm-up was a calisthenics routine for 5 minutes. Each warm-up routine (and non-warm-up) was followed by a standardized 5-minute bicycle ergometer exercise. Conclusions were: for junior high school and college age males neither informal nor formal warm-up significantly affected terminal heart rate during a standardized bicycle ride; and adult men have significantly higher terminal heart rates after a bicycle ride when exercise is preceded by a calisthenics-type warm-up but not when the exercise is preceded by a warm-up of bicycle riding.

30. SMITH, Sandra E. A comparison of two methods for predicting weight using body fat as a criterion. M. Ed. in Physical Education, 1968. 52 p. (G. C. Moore)

The purpose of the study was to determine the relationship between two methods of predicting weight (Pryor width-weight tables and the Metropolitan desirable weight table) and skinfold measurement of body fat determined by the sum of 6 skinfold measurements. Data were collected on 73 college freshman women to obtain a weight prediction by the Pryor and by the Metropolitan methods. Pearson product moment correlations were computed between each of the 2 weight predictions and body fat. The results were: Pryor and skinfold: .590 ± .076; Metropolitan and skinfold: .580 ± .078; and Metropolitan and Pryor: .719 ± .058. Conclusions were: the Pryor width-weight tables and the Metropolitan desirable weight table have a significant relationship with the summed total of 6 skinfold measurements; and either the Pryor or the Metropolitan predictions can be used as a predictor of desirable weight with total fat as the criterion.

31. WESCOTT, Roberta P. The effect of four pre-exercise heart rate conditions on the postexercise heart rate. M. Ed. in Physical Education, 1968. 41 p. (G. C. Moore)
The purpose of the study was to determine the effect of 4 pre-exercise conditions (resting, +4, +8, and +12 beats above resting) on the 15-second and the one-minute postexercise pulse following a one-minute step exercise. The 8 volunteer subjects were females between the ages of 22 and 49 with a mean age of 28. The test used was a one-minute step exercise of 30 steps per minute on a 13-inch bench. The heart rate during and immediately after exercise was recorded. The results showed no significant differences between any of the 15-second or one-minute postexercise means. It was concluded that when the pre-exercise heart rate is permitted to vary from resting to as much as nine beats above resting, there is no significant difference in the first 15-second postexercise heart rate or in the first one-minute postexercise heart rate.

University of British Columbia, Vancouver, British Columbia

(S. R. Brown)

32. BOYD, William R. A phase-plane analysis of physical working capacity. M. P. E., 1967. 59 p. (S. R. Brown)
Young men (N=32) did a step-wise bicycle ergometer test (Sjostrand PWC_{170}) and, at prescribed intervals during recovery, records of the brachial pulse wave, first derivative of the wave, phase-plane loop and ECG were obtained by photographing the oscilloscope display of these parameters. The relative contribution of the different photographic measurements to the prediction of PWC_{170} was determined by multiple regression analysis. The 'best' combination of predictive variables consisted of phase-plane measurements but these shared only 42 percent common variance with PWC_{170}.

33. CHAMBERS, David L. The effect of specific experimental variables on recovery rate of the heart of varsity ice hockey players. M. P. E., 1967. 114 p. (R. G. Hindmarch)
Four university ice hockey players did a series of timed skates at speed each of which was followed by a 4-minute recovery period in one of 4 different positions. The positions were: normal sitting, normal sitting with massage of the legs, elevation of legs, and controlled breathing. The heart rate was recorded continuously during recovery by telemetry and the graphical plot of the recovery 'half-time' was used to gauge the effectiveness of the recovery procedure. The results showed that the effectiveness of the methods was in the following order: elevation of the legs, controlled breathing, massage, normal sitting.

34. DUGGAN, E. Anthony. The effect of special training in motor skills on the reading ability of grade two pupils with specific reading disability. M. P. E., 1967. 105 p. (H. D. Whittle)

Thirty-two grade 2 pupils who were classified as poor readers were given pretraining standardized tests in mental ability, reading achievement, visual perception and general motor capacity. The pupils were assigned to 5 groups for special treatment, i.e., (1) control, (2) special instruction in motor skills and reading, (3) special instruction in motor skills, (4) special reading instruction, (5) special training in reading and visual perception. At post-test, after 65 days of instruction, group 3 had improved more than any other group in motor capacity and visual perception and had progressed as well as, but no better than, any other group in reading ability.

35. JACKSON, Roger C. A fitness appraisal of champion oarsmen, including analysis of maximum oxygen consumption, electrocardiogram complexes and the brachial pulse wave and its time derivatives. M.P.E., 1967. 95 p. (E. W. Banister)

Six world-class oarsmen were tested twice before and twice after an 8-week pre-season conditioning period. Measurements were obtained from photographs of oscilloscope displays of the brachial pulse wave, the first derivative of the pulse wave, the phase-plane display and the ECG before and after a 5-minute step test; and continuous recordings of the ECG, oxygen consumption and carbon dioxide production during an all-out bicycle ride in a closed circuit respirometry chamber. The men also did mile runs and dynamometrical strength and muscular endurance tests, in which reliable improvements were shown over 8 weeks. Of the 42 cardiovascular measurements made, only 3 showed statistically reliable improvement.

36. LEITHWOOD, Kenneth A. The personality characteristics of three groups of weight trainers. M.P.E., 1967. 60 p. (R. G. Hindmarch)

Three groups of weight trainers - 15 men who engaged in supplementary training for competitive sport, 15 men who trained to develop their physiques and 15 who trained to improve competitive lifting performance - were given Cattell's 16 personality factor questionnaire (Form A). The weight trainers as a whole were found to differ from the general population in the following characteristics: intelligence (more), superego strength (less), shy, withdrawn (more), forthright, artless (more), self-sufficient, resourceful (more). Comparisons between groups by analysis of variance failed to show any differences in personality characteristics.

37. LORENZEN, William T. Policies governing community use of school facilities for recreational purposes in selected school districts: a case study. M.P.E., 1967. 154 p. (R. F. Osborne)

An analysis was made of recreational policies regarding the use of school facilities in 4 different urban communities close to Vancouver, B. C. Information was obtained by interviews and by analysis of written policies. The chief barrier to greater use of school facilities appeared to be lack of communication between people in the schools and in the recreation departments. Other difficulties were inadequate governmental financing, lack of reciprocal sharing of educational and recreational facilities and a narrow vision shown in the formulation of district policy.

38. WILLIAMS, Carol Inge. The evaluation of a physical education program for grade one blind and partially-sighted children in a residential school for the deaf and blind. M.P.E., 1967. 49 p. (E. W. Banister)

The effects of a special physical education program for a group of blind and partially-sighted school children were evaluated by objective tests, ratings of filmed performances of motor activities and by the teachers' ratings. The children were considered to have improved in a number of ways and especially in confidence and basic skill performance.

University of California, Berkeley, California

(H. Eckert and D. B. Van Dalen)

39. BRUCE, John Ronald. The relation of maximal oxygen intake to performance on a bicycle ergometer. M.A. in Physical Education, 1967. 49 p. (J. H. Wilmore)

40. CARRON, Albert Vital. Performance and learning in a discrete motor task under massed- versus distributed-practice. Ed.D. in Physical Education, 1967. 76 p. (F. M. Henry)

41. COLES, Allan James. The measurement of endurance in heavy exercise. Ed.D. in Physical Education, 1966. 70 p. (F. M. Henry)

42. DI GUILIO, Raymond Joseph. Physiological effects of preliminary exercise on endurance performance. M.A. in Physical Education, 1967. 83 p. (J. H. Wilmore)

43. FELMAN, Ahron Lewis. The effects of systematic variation of speed and distance in coincidence timing. Ed.D. in Physical Education, 1966. 44 p. (F. M. Henry)

44. LAURO, Geraldine. Motor performances of primary grade children. M.A. in Physical Education, 1967. 66 p. (A. S. Espenschade)

Balance, flexibility, and jumping were tested in 266 Negro and white 6-, 7-, and 8-year-old children. Static balance, dynamic balance, broad jump, and jump and reach measures improved significantly from 6 to 8 years. Flexibility means decreased with age but age differences were not significant. Sex comparisons showed boys consistently superior in jumping and girls superior in static balance and flexibility but few of the differences were significant. Racial comparisons indicated Negro children were significantly better in the jump and reach and in 3 of the 6 broad jump groupings.

45. MACDONALD, Annette Claire. The Big Drum Dance of Carriacou: Its structure and possible origins. M.A. in Physical Education, 1967. 133 p. (D. B. Van Dalen and A. S. Espenschade)

The 12 dances of the Big Drum Cance in Carriacou were observed for steps, styling, and costumes of the dancers. Thirty-two steps were identified and recorded and each dance was described in terms of sequence of steps and stylings. Except for 3 dances there appeared to be a random repetition of individual steps. Twenty-six steps were categorized as belonging to locomotor pattern and 6 steps placed in the category of isolation pattern. A comparison of the steps and stylings of the Carriacou with available West African information indicates some confirming evidence of the belief that some of the steps and stylings found in the Big Drum Dance may stem from African origin.

46. MONCRIEFF, John. Motor learning and transfer as a function of intratask difficulty. Ed.D. in Physical Education, 1966. 46 p. (F. M. Henry)

47. OSTARELLO, John Z. The influence of massing of practice in reminiscence in motor learning. M.A. in Physical Education, 1967. 46 p. (F. M. Henry)

48. PARKER, William Edward. Reminiscence as a function of massing of practice in learning a balance-coordination task. M. A. in Physical Education, 1967. 50 p. (F. M. Henry)

49. STELMACH, George Edward. Effectiveness of motor skills practice as a function of various practice schedules. Ed. D. in Physical Education, 1967. 55 p. (F. M. Henry)

50. STONE, William James. The influence of race and socio-economic status on physical performance. Ed. D. in Higher Education and Physical Education, 1966. 60 p. (A. S. Espenschade and J. C. Stone)

Negro and white boys (N=112), aged 10 through 12 years, were arranged into 4 matched groups on the basis of age and physique (Wetzel grid) and on upper-middle and lower-middle socio-economic status. Negro boys were significantly superior in sit-ups, broad jump, 50-yard dash, shuttle run, and softball throw. (Other items were pull-ups and 600-yard run.) The softball throw was the only item showing a reliable difference for the two social groups with the lower-middle class being superior. There were no significant F-ratios for the interactions on the seven items.

University of California, Los Angeles, California (R. A. Snyder)

51. ALLEN, Joel Root, Jr. Use of a survey instrument to determine significant school recreation program differences. M. S. in Physical Education, 1967. 142 p. (N. P. Miller)

52. DUHU, Robert. Sports and international relations. M. S. in Physical Education, 1967. 124 p. (B. W. Miller)

53. FOLAND, Ronald Eugene. A comparison of training methods related to chin-up performance ability. M. S. in Physical Education, 1967. 59 p. (W. Massey)

54. HEAPS, Gerald Eugene. The effects of work intensity on grip strength. M. S. in Physical Education, 1967. 68 p. (W. Massey)

55. HILGENDORF, Jane Alyce. Relationship between rhythmical and quantitative abilities. M. S. in Physical Education, 1967. 82 p. (W. Massey)

56. JACKSON, Robert Allen. Value of step test in police recruit physical fitness program. M. S. in Physical Education, 1967. 64 p. (W. Massey)

57. JACOBSON, Richard Lee. An experimental study of flexibility and its retention in competitive swimmers. M. S. in Physical Education, 1967. 65 p. (W. Massey)

58. JEFFRESS, Robert Newton. The effects of exercise on hexokinase activity in skeletal muscle of guinea pigs. M. S. in Physical Education, 1967. 46 p. (D. Lamb)

59. JONES, Shirley Kathryne. A measure of tennis serving ability. M. S. in Physical Education, 1967. 62 p. (W. Massey)

60. KILPATRICK, Donald Arthur. Scholastic achievement of athletes and nonathletes. M. S. in Physical Education, 1967. 56 p. (W. Massey)

61. KINDER, William Leroy. The effect of position of trial leg in track starts. M. S. in Physical Education, 1967. 60 p. (W. Massey)

62. LOCKE, Betty Mae. Factors relating to performance of poor-achieving girls in physical education. M. S. in Physical Education, 1967. 86 p. (D. Handy)

63. LOWE, Leland Douglas. The Hoffmann reflex during movement of the ankle. M. S. in Physical Education, 1967. 66 p. (L. Morehouse)

64. MACINTYRE, Christine Melba. The effects of a weight training program upon body contours of young women 18-22. M. S. in Physical Education, 1967. 59 p. (G. Egstrom)

65. MORTENSON, Elaine Mayree. Body composition and exercise. M. S. in Physical Education, 1967. 56 p. (G. Gardner)

66. RISKAS, Mike. The effects of weight training on hitting power in the football charge. M. S. in Physical Education, 1967. 80 p. (W. Massey)

67. SCHONER, Robert L. Trainability of position re-location of the blind. M. S. in Physical Education, 1967. 57 p. (B. J. Cratty)

68. SIMPSON, Ronald H. The specificity of the prestart phenomenon. M. S. in Physical Education, 1967. 78 p. (L. Morehouse)

69. STALWICK, Donald Wallace. A cinematographic analysis of the football kickoff. M. S. in Physical Education, 1967. 93 p. (D. Handy)

70. STRANDWALL, Mari-Ann Gun. Physical performance of American and Swedish girls as measured by the California physical fitness test. M. S. in Physical Education, 1967. 83 p. (W. Massey)

71. TAYLOR, Robert William. Physiological effects of variances in snorkel tube design. M. S. in Physical Education, 1967. 90 p. (G. Egstrom)

72. THEBAUT, James Clifford. Identification of power structure in a professional recreation organization. M. S. in Physical Education, 1967. 73 p. (S. Arnold)

73. WHYTE, Frank William. A critical-incident study of police physical performance. M. S. in Physical Education, 1966. 47 p. (L. Morehouse)

74. YOUNG, Jacqualan Cheers May. An electromyographic study: cross transfer effect of unilateral exercise. M. S. in Physical Education, 1967. 38 p. (G. Gardner)

University of California, Santa Barbara, California (V. Skubic)

75. BOSCH, Raymond A. The effect of leg strength training upon the execution of the vertical jump. M. A. in Physical Education, 1966. 43 p. (E. Michael)

Subjects trained 3 times weekly performing leg squat exercises to a position where the upper legs were parallel with the floor, followed by the return to an erect position. The experimental subjects (N=22) exercised with weights on their shoulders while the control subjects (N=24) exercised without heights. The vertical jumping height was measured and a leg dynamometer measured isometric leg strength. A significant improvement in both Sargent jumping and leg strength was shown for the experimental subjects. The control group did not improve in either test.

76. CAMPBELL, Mary Jo. Evaluation of heat tolerance of young females. M. A. in Physical Education, 1966. 53 p. (S. Horvath)
The subjects were divided into 4 groups on the basis of their observable reactions to heat (ambient temperature of 57 C). Group I (N=4) contained those who did not complete the 2 hour experiment. The 3 subjects in Group II had to be partially supported from the environmental room after the two hours in the heat because of transient syncope. Eight females in Group III displayed moderate reactions, i. e., considerable discomfort - but did not need support when standing and walking after the experiment. The 9 subjects in Group IV displayed no observable reactions to the heat and felt fine throughout and after the two hours in the heat. There were no significant differences between Groups II and III in any of the measurements. However, the average strain index, delta pulse pressure, terminal mean skin temperature, and heat gain in kcal/kg. body weight of Group IV were significantly lower than those of Group III.

77. FRIEDMAN, Henry A. An analytical history of the intercollegiate athletic administration at the University of California, Santa Barbara, 1954-1964. M. A. in Physical Education, 1966. 81 p. (W. Wilton)
Data were gathered for this historical study by means of interviews with persons connected with the administration of intercollegiate athletics and the analysis of documents pertaining to this subject. As the data were compiled, they were classified according to the succession of years from 1954-64. As the history of each year was written, the significant material was further classified into categories: personnel, finance, strengths, weaknesses, and the design of administrative control. These data were compared to the data of preceding and succeeding years in order to determine the trends and patterns that were either beneficial or detrimental to the University's intercollegiate athletic program.

78. GARY, Robert Harris. An investigation of time estimation among competitive swimmers at the University of California, Santa Barbara. M. A. in Physical Education, 1967. 91 p. (V. Skubic)
Competitive and noncompetitive swimmers were required to produce time estimates of 5 seconds, 10 seconds, 30 seconds, and 60 seconds without knowing how accurate they were on any trial. The experiment further required the subjects to make these estimations under conditions of swimming while wearing a harness to prevent progress through the water, and swimming with progress being permitted. The results of this study indicate that the time estimates of both the competitive and noncompetitive swimmers were similar at rest and during swimming. Both groups had a mean error of more than 10 percent for time intervals of less than 10 seconds and 5 percent for intervals of 30 and 60 seconds when knowledge of accuracy was withheld. Mean error was reduced to less than 5 percent for all intervals by providing the subjects with knowledge of the accuracy of their preceding trials. Therefore, swimming coaches should give their swimmers knowledge of accuracy of swimming times since this knowledge provides greater accuracy in time estimation.

79. GAYNOR, Donald. An explanation and analysis of an action theory of creativity. M.A. in Physical Education, 1966. 80 p. (W. Wilton)
Certain principles and guidelines concerning physical education, creativity, the creative individual, and the creative process were presented. Opinions of selected authors concerning the relationship of the creative process to physical education were also stated. A theory was developed in an attempt to unify the principles known about creativity and physical education into a conceptual whole. This theory, which was called an action theory of creativity, consisted of a prototype of the role of creativity in physical education. Its function was to describe how creativity could operate within an action or movement situation.

80. HARRES, Helen B. A study of the attitudes of undergraduate students at the University of California, Santa Barbara, toward athletic competition for girls and women. M.A. in Physical Education, 1966. 87 p. (V. Skubic)
The attitude inventory consisted of 38 statements which were divided into 4 categories: mental-emotional, social-cultural, physical, and personality. Questionnaires and attitude inventories, 283 or 94.7 percent of the original number distributed, were completed and submitted to statistical analysis. It was found that participation by respondents in athletic competition tends to make them more favorable in attitude toward the desirability of athletic competition for girls and women; the respondents consider participation by girls and women in individual sports to be more desirable than participation in team sports; and the subjects for this study are favorable, though not highly favorable in attitude toward the desirability of athletic competition for girls and women.

81. HORN, Robert G. Evaluation of physical education programs in a theocentric school system. M.A. in Physical Education, 1966. 98 p. (W. Wilton)
The characteristics of a total physical education program were examined in depth, and this established foundations on which to develop a score card for physical education programs in Lutheran elementary schools. A preliminary form of the score card was submitted to a jury of 35 Lutheran educators. The final score card was formulated on the basis of their criticisms and comments. The score card developed in this study appeared to be an effective device for evaluating the physical education programs of Lutheran elementary schools.

82. KATCH, Franklin Irwin. Physical training and body composition of females. M.A. in Physical Education, 1967. 70 p. (E. Michael)
A study was conducted to determine the effects of two different physical training programs on the body composition of college females. Ten tennis players and 5 swimmers were measured 3 times during 15 weeks of sports training. Body composition measurements included body density of underwater weighing, subcutaneous skinfold fat and estimated percent of body fat. No significant F ratios were found within or between the 2 groups for any of the experimental variables measured. Either the calorie expenditure during the workouts was insufficient to cause changes in inner fat metabolism, or dietary intake was modified to maintain the body composition.

83. LAWRENCE, Margaret A. Public relations and mass media: Their influence on the physical education image. M.A. in Physical Education, 1966. 90 p. (W. Wilton)
Problems facing today's physical educator were determined by analyzing the physical education literature for the years 1960-66. The mass media, their formats and capabilities were determined through a search of the

mass media communications literature. It was found that: the athletic part of the physical education program was shown to have had the most public "exposure," and that this one-sided "exposure" of physical education has helped to create a false public image of the total physical education program; there is confusion in the minds of the public concerning the terms "physical educator" and "coach"; and physical educators need to expend every effort to improve the image of physical education and its professionals through the use of the latest means of mass media to reach the largest number of people.

84. LEACH, Mary Ellen. Relative strenuousness of the roving player and full court games of basketball for college women. M.A. in Physical Education, 1967. 249 p. (J. Hodgkins)
Cardiac frequency and rectal temperature responses to 4 roving player games and 4 full-court games of basketball were observed in 12 skilled and physically well-conditioned college women. The data were analyzed to determine the relative strenuousness of the two game types and of the various playing positions within the game types. It was concluded that: the physiological demand placed on players in the rover position was as great as that placed on players in the full-court player position; play in either the rover or full-court player position was more strenuous than play in the combined position of the roving player game, the forward position, and the guard position; and the strenuousness of play in the combined position of roving player game was identical to that in the forward position which was similar to that in the guard position.

85. MORBETO, Joseph A., Jr. The incidence of prayer in athletics as indicated by selected California collegiate athletes and coaches. M.A. in Physical Education, 1967. 133 p. (W. Wilton)
Questionnaires were sent to all of the 4 year colleges and universities in California. Information was gathered from athletes and coaches which indicated their beliefs and practices with regard to prayer as it related to athletic competition. It was found that a majority of those returning the inventory pray in some way in connection with their athletic competition. They pray in a multiplicity of forms, for a variety of reasons, and with varying convictions about the effect of their prayers.

86. MULDER, Ronald Thomas. A comparative analysis of the physical education programs on selected church-related institutions in California. M.A. in Physical Education, 1966. 216 p. (W. Wilton)
On the basis of interviews, score card, and questionnaire, 10 church-related institutions were appraised and rated. An analysis of the intercollegiate athletic programs of these institutions showed that the mean budget was $17, 684 and the average number of sports supported by these colleges was 6. The major weaknesses in the physical education programs were in the areas of indoor and outdoor facilities, equipment and supplies, and program of activities. These weaknesses can be attributed largely to insufficient financial support. The strengths of the programs seemed to lie in the areas of methods of instruction, program planning, and student personnel policies.

87. OLSON, Beverly A. Effects of training on work capacities of women. M.A. in Physical Education, 1967. 64 p. (S. Horvath)
The subjects were 6 college age women tested before and after training on 2 tests: a maximal work test and an endurance test walk of 60 minutes duration. The training program consisted of 12 one-hour walks at 3.5 m.p.h. and varying degrees of slope. The slope was varied enabling the subject to complete the hour walk with a mean heart rate of approximately 130. All subjects were able to increase their percent grade of walking during training while the heart rate decreased and metabolic cost

remained constant. There were small but statistically significant increases in oxygen uptake and minute ventilation at the maximal work level. There was a significant decrease of 12 percent in heart rate and 24 percent decrease in oxygen uptake in the performance of the second endurance walk. The magnitude of improvement being equal to, or greater, than male subjects would suggest that perhaps the physiological mechanism of the females are more easily influenced by training.

88. QUEEN, Margaret Moffitt. Forces and factors affecting the history of the Rose Bowl. M. A. in Physical Education, 1966. 231 p. (W. Wilton)
The purpose of this study was to review and evaluate this historic event in relation to its effect upon Pasadena and to enumerate the community's efforts in its perpetuation. The cumulative account of the Rose Bowl football game, the Tournament of Roses parade, and the efforts of the people of Pasadena to assure the success of this New Year's Day pageant combine to support the hypothesis of this thesis - the game's acclaim as number one stems from a community-wide pride and effort.

89. SCHIESEL, Michael L. An analysis of competitive free-style swimming turns. M. A. in Physical Education, 1966. 69 p. (E. D. Michael)
Four highly skilled varsity swimmers were selected to participate in this study. Practice was held 5 days a week for a period of 20 minutes per day. Recorded test periods were held at the end of weeks 1, 2, 3, 4, 8, and 12. The last test period was conducted with the simultaneous termination of the varsity swimming season as it was believed that at this particular time all subjects would be in "peak swim" condition and the execution of their turns would be fastest. Stop watch test-timing procedures indicated that the swimmers who used the experimental free-style pike underarm turn were able to complete their turns in a faster elapsed time than when the conventional tumble turn was utilized.

90. SUNDBLAD, Theodora J. The relationship between certain rhythm tests and the rhythm as found in the execution of two gross motor skills. M. A. in Physical Education, 1966. 96 p. (V. Skubic)
Seventh grade girls (N=185) took the Seashore test of rhythmic perception in which subjects were to discriminate between rhythmic patterns. Of these girls 155 then took the gross motor rhythm test which consisted of 3 rhythmic patterns beaten on a drum. Subjects repeated these patterns by moving in a designed sequence on electrical equipment. Results of the test were recorded on tape. The only significant relationship existed between the gross motor rhythm test and the rhythmic execution of the lay-up shot. However, there was a tendency for those who scored in the top 10 percent of the rhythm tests to score better on the motor skills than those who scored in the bottom 10 percent. The relationships between the rhythm tests and scores on the school and college ability tests were significant.

Central Missouri State College, Warrensburg, Missouri (M. E. Lyon)

91. CORNELL, Sandra L. The effect of a battery of selected exercises on arm and shoulder-girdle strength endurance of high school age girls. M. S. in Physical Education, 1967. 77 p. (L. B. Beaver)
Eleventh and 12th grade girls (158) were randomly assigned to 2 groups. The experimental group performed 4 specifically selected exercises for the arms and shoulders and the control group participated in general conditioning exercises for a period of 8 weeks or 20 class periods. Strength endurance was measured using the straight-arm support on

parallel bars for as long as possible. The experimental group experienced a significantly greater increase in strength endurance than the control group.

92. EBERTING, Samdra L. The effect of a battery of specifically selected exercises in the improvement of lordotic postural deviations. M.S. in Education, 1966. 77 p. (L. B. Beaver)
College freshman women (28) were assigned to 2 groups equated on the basis of the deviations of 4 anatomical landmarks from a vertical line. The experimental group performed a graduated battery of 4 exercises involving the abdominals and lower back for 12 class periods. The control group participated in unrelated activities during the same period. Improvement of lordotic postural deviations was significantly greater in the experimental group.

93. HAMILTON, Larry M. A comparison between the effects of resistance and nonresistance training on varsity competitive swimmers. M.S. in Physical Education, 1967. 41 p. (L. B. Beaver)
Male college varsity swimmers (10) were assigned to 2 groups with a representative of each competitive stroke in each group. The pre-season training of one group consisted of isometrics, isotonics, and running, but no swimming. The second group's training consisted of swimming only. After the completion of 6 weeks of pre-season training both groups participated in the same interval training and skill improvement program. The performance of the 2 groups in actual competition was not significantly different in any of the 5 swimming meets held during the season.

Chadron State College, Chadron, Nebraska (T. P. Colgate)

94. ERLEWINE, Ted J. A study of the professional preparation program in health and physical education for men at Chadron State College. M.S. in Education, 1966. 106 p. (J. E. McBride)
The study evaluated the undergraduate professional preparation program and the staff against generally accepted and recognized criteria. The investigation showed that the program was weak in foundation sciences, and adequate to strong in general academic, professional education, and professional physical education areas. Staff members were rated high on the AAHPER evaluation check list.

95. HIGH, Dorothy H. Physical fitness achievement of girls in the Alliance, Nebraska, City Junior High School. M.S. in Education, 1967. 157 p. (T. P. Colgate)
The purpose of the study was to determine the effect of a year's physical education program on the physical fitness achievement of junior high girls. The instrument of measurement was the New York State physical fitness screening test. The findings indicated that the girls improved in over-all physical fitness and that the same girls fell below the average of the New York State junior high school girls.

96. MURRAY, Guy B. A comparison of physical fitness achievement of students subjected to two different types of physical education programs at Chadron State College. M.S. in Education, 1967. 75 p. (T. P. Colgate)
The purpose of this study was to compare the physical fitness achievement of freshman males enrolled in a new physical fitness program with the physical fitness achievement of students enrolled in activity type classes. A modified Iowa physical fitness test was used as the instrument of measurement. The physical fitness classes showed a significant (.001) increase in physical fitness achievement and the activity classes showed no significant improvement.

97. QUARLES, John Nelson. A comparative study of two training methods and their effect upon leg power as measured by the vertical jump. M.S. in Education, 1967. 54 p. (T. P. Colgate)

The purpose of this study was to compare the increase in leg power of a simulated rope jumping group of subjects with a stair running group of subjects. Work loads were equated. The stair running group showed a significant gain in leg power while the rope jumping group did not show a significant gain.

98. SCHWARTZ, James F. The attitudes of male students toward the required physical education program at Chadron State College. M.S. in Education, 1966. 69 p. (T. P. Colgate)

The investigation showed that 72.2 percent of the students indicated a favorable to highly favorable attitude, 18.1 percent indicated a neutral attitude, and 9.6 percent indicated an unfavorable to extremely unfavorable attitude toward the physical education program.

Colorado State College, Greeley, Colorado (J. N. Barham)

99. BAKER, Earl Henry. The effects of intensity and modified circuit-training programs on selected measures of physical performance. Ed. D. in Physical Education, 1967. (Montgomery)

100. BATCHELDER, Robert Wesley and HALL, James Ross. Principles for the administration of athletics for member institutions of the National Collegiate Athletic Association. Ed. D. in Physical Education, 1965. (Butler)

101. CAINE, John Ernest. The effect of instant analysis and reinforcement of motor performance through the use of cinematography techniques related to television. Ed. D. in Physical Education, 1966. (Pearson)

102. CAMPBELL, Donald E. A study of the influence of several physical activities upon the blood serum cholesterol. Ed. D. in Physical Education, 1961. (Staton)

103. DITTUS, Loren Karl. The role of the physical education director. Ed. D. in Physical Education, 1966. (Staton)

104. DOORNBOS, Roy, Jr. A procedure of obtaining transfer status of junior college credits in physical education in Michigan colleges and universities. Ed. D. in Physical Education, 1962. (Butler)

105. EDGINGTON, Charles Wendell. Development of an attitude scale to measure attitudes of high school freshman boys toward physical education. Ed. D. in Physical Education, 1965. (Butler)

106. ENGLUND, John Homer. A comparative study of cardiovascular adjustment to rapid and extreme weight reduction in college wrestlers. Ed. D. in Physical Education, 1962. (Everett)

107. FARLEY, William Edward. The effects of instruction and use of a mechanical device based upon a scientific principle as applied to basketball shooting. Ed. D. in Physical Education, 1967. (Montgomery)

108. GENASCI, James E. A study of the effect of participation in physical education activities and athletics on reaction and movement time. Ed. D. in Physical Education, 1960. (Everett)

109. GRAVES, Oard Conrad. The effects of initial testing and knowledge of mechanical principles upon the performance of a motor skill. Ed. D. in Physical Education, 1962. (Staton)

110. GREEN, Elton E. The relationship of lean body mass to strength. Ed. D. in Physical Education, 1967. (McKain)

111. HALL, James Ross and BATCHELDER, Robert Wesley. Principles for the administration of athletics for member institutions of the National Collegiate Athletic Association. Ed. D. in Physical Education, 1965. (Butler)

112. HALLSTROM, Thomas Lynn. An exploratory study of the effect of spatial teacher, combination spatial teacher, and classroom teacher instruction upon certain aspects of physical fitness and motor skill development. Ed. D. in Physical Education, 1965. (Butler)

113. HETHERINGTON, Elizabeth Leone. Personality characteristics of college women students majoring in physical education with a concentrated study in contemporary dance. Ed. D. in Physical Education, 1961. (Staton)

114. HERMAN, William Lane. Relationship between selected characteristics in teaching attitude of male senior physical education majors and minors at Colorado State College. Ed. D. in Physical Education, 1964. (Butler)

115. HUGHES, William Macferren. The effects of a developmental program upon selected measures of physical performance. Ed. D. in Physical Education, 1964. (Butler)

116. HUMPHREY, Leroy Dennis. The effect of repeated vertical rotation, with and without the use of a specific orientation technique on the duration of the after-nystagmus and on dynamic balance. Ed. D. in Physical Education, 1967. (Barham)

117. HUSSEY, Robert William. A comparison of two methods of teaching a specific motor activity to youngsters in relation to intelligence and motor ability measures. Ed. D. in Physical Education, 1966. (Montgomery)

118. JONES, James Richard. An evaluation of the physical education program for men in selected colleges and universities and an appraisal of the score card employed. Ed. D. in Physical Education, 1967. (Pearson)

119. KAHLER, Robert William. The influence of cold applications upon running performances. Ed. D. in Physical Education, 1961. (Staton)

120. KEITH, Bradley Foster. A study of the leisure physical activities of teachers. Ed. D. in Physical Education, 1962. (Danford)

121. KRAUSE, Jerry V. The development of a self-instructional mechanics textbook and the determination of its influence on the achievement of specific knowledge in mechanical kinesiology. Ed. D. in Physical Education, 1967. (Barham)

122. LEACH, John H. Relationships between selected characteristics

of recreation board members and their opinions toward problems in recreation. Ed. D. in Physical Education, 1966. (Butler)

123. LUTZ, Loren L. The influence of programed instruction on the achievement of specific knowledge in a selected physical education activity. Ed. D. in Physical Education, 1966. (Everett)

124. MARBURGER, Donna Rae. The effect of two methods of teaching beginning tennis on the development of tennis skill and knowledge and on attitude toward physical education. Ed. D. in Physical Education, 1965. (Everett)

125. MEHN, Duane Butenhoff. The experimental analysis of base-running techniques. Ed. D. in Physical Education, 1963. (Butler)

126. MEISE, William Charles. The construction of a scale for the evaluation of opinions toward healthful living. Ed. D. in Physical Education, 1962. (Staton)

127. MONTGOMERY, Robert A. The effects of knowledge and application of the mechanical principles of force and projection upon selected physical performance test items. Ed. D. in Physical Education, 1961. (Danford)

128. MURDA, Darrell Eugene. The critical analysis of football coaching practices in the light of a selected group of learning principles. Ed. D. in Physical Education, 1965. (Staton)

129. NURSKI, Andrew John. A critical analysis of high school athletics in metropolitan high school districts of the United States. Ed. D. in Physical Education, 1963. (Butler)

130. NYLANDER, James Grant. An analysis of the application to research findings in physical education. Ed. D. in Physical Education, 1966. (Butler)

131. PRYBYLOWSKI, Florence. A comparative study of the relative effectiveness of two methods of teaching beginning swimming to children. Ed. D. in Physical Education, 1960. (Everett)

132. ROLLOFF, Bruce Dale. The organization and administration of a program in public relations for physical education. Ed. D. in Physical Education, 1965. (Butler)

133. RYAN, Robert Rodney. The effects of participation in selected intramural sports upon physical fitness, social, and emotional adjustment of college fraternity men. Ed. D. in Physical Education, 1963. (Butler)

134. SHIRLEY, John Max. The development of an undergraduate recreation curriculum for Colorado State College. Ed. D. in Physical Education, 1963. (Butler)

135. SLAYMAKER, Thomas Edward. A comparison of selected physical characteristics of volleyball players at three levels of competition. Ed. D. in Physical Education, 1966. (Shirley)

136. SORGE, Robert William. The effects of levels of intense activity on total body reaction time. Ed. D. in Physical Education, 1960. (Staton)

137. THOMAS, William L. The effects of programed instruction in anatomical kinesiology. Ed. D. in Physical Education, 1967. (Barham)

138. THOMPSON, Donnis H. Immediate external feedback in the learning of motor skills through the use of the graph check sequence chart. Ed. D. in Physical Education, 1967. (Pearson)

139. TOMINAGA, Henry Kiyoshi. The development of physical education guidelines and activities for educable mentally retarded classes. Ed. D. in Physical Education, 1964. (Butler)

140. TREMBLE, Neal C. The influence of warm-up on injury to the hamstring muscles in college sprinters. Ed. D. in Physical Education, 1962. (Everett)

141. WALKER, Lincoln Richard. The development of a model required general kinesiology program for the professional preparation of undergraduate physical education majors. Ed. D. in Physical Education, 1966. (Barham)

142. WALLACE, Bill C. Relationship of health attitudes to physical fitness levels in grades VII, IX, and XI. Ed. D. in Physical Education, 1966. (Staton)

143. WESTERING, Forrest Edward. The effects of various programs of physical conditioning on selected measures of physical performance. Ed. D. in Physical Education, 1966. (Montgomery)

144. WILKIN, Bruce Marvin. The effect of interscholastic competition on certain areas of self-concept of seventh grade boys. Ed. D. in Physical Education, 1963. (Butler)

University of Colorado, Boulder, Colorado (L. E. Horine)

145. HORINE, Lawrence E. An investigation of the relationship of laterality to the performance on selected motor ability tests. Ed. D., 1966. 175 p. (H. H. Wubben)

Batteries of tests for footedness, handedness, and eyedness were administered to 200 boys 10 years of age from 8 elementary schools. On the basis of these tests, the subjects were grouped into 4 categories: pure right-sided; predominantly right-sided, but not including the pure right; mixed; and predominantly left-sided including the pure left-sided. All of the subjects were given motor ability tests in the shuttle run, dynamic balance, motor educability, and speed of arm movement. The performances of the four laterality groups on these motor tests were compared. The findings did not show sufficient evidence to refute the null hypothesis that there is no difference in the level of performance on selected motor tests of subjects in various laterality groups.

Drake University, Des Moines, Iowa (N. Tremble)

146. BENDER, David F. A comparative study of high school athletic insurance programs. M.S. in Physical Education, 1967. 47 p. (N. Tremble)

147. CONWAY, Robert G. A comparison of physical fitness and selected measures of personality traits and social adjustment

factors. M. S. in Physical Education, 1967. 40 p. (C. Heilman)

148. DONOVAN, Nell. A comparative analysis of two concepts of modern dance with recommendations for a college modern dance curriculum. M. S. in Physical Education, 1967. 40 p. (C. Heilman)

149. ELGIN, John A. The effect of interscholastic athletic participation on the academic achievement of selected high school boys. M. S. in Physical Education, 1967. 40 p. (C. Heilman)

150. FUNK, George R. State athletic associations of Iowa and six adjacent states. M. S. in Physical Education, 1967. 41 p. (N. Tremble)

151. HOWELL, William T. The influence of ankle weights on jumping height of high school basketball players. M. S. in Physical Education, 1967. 21 p. (N. Tremble)

152. JACOBSON, Charles L. Gymnastics in the required physical education program for boys in selected public high schools of Iowa. M. S. in Physical Education, 1966. 53 p. (C. Heilman)

153. KARNES, Robert D. Personality traits of selected athletes at Drake University in a group and in an individual sport. M. S. in Physical Education, 1967. 36 p. (N. Tremble)

154. KUKOWSKI, Beverly J. Legal liability of physical education teachers in Iowa. M. S. in Physical Education, 1967. 70 p. (N. Tremble)

155. LONG, George. An organized program of boys' physical education and health education for Iowa Class B high schools. M. S. in Physical Education, 1967. 67 p. (C. Heilman)

156. MAURO, Dominic R. Salary policies for the teaching of selected sports in Class AA schools of Iowa. M. S. in Physical Education, 1967. 70 p. (N. Tremble)

157. MUNCH, Frank J. Athletic budgets with implications for deficit spending, provision of personal equipment, and insurance plans. M. S. in Physical Education, 1967. 39 p. (N. Tremble)

158. SIEFKEN, Don. The influence of transferring a baton from one hand to the other hand on running speed. M. S. in Physical Education, 1967. 36 p. (N. Tremble)

159. SMITH, Harold M. A history of track and field for high school girls in Iowa. M. S. in Physical Education, 1967. 43 p. (N. Tremble)

160. STUART, Herbert A. A controlled breathing exercise program in physical education to determine lung performance of fourteen muscular dystrophy students. M. S. in Physical Education, 1966. 37 p. (C. Heilman)

161. TRELOAR, Florence G. Curriculum in physical education, health education and play for the school child with implications for the Head Start program. M. S. in Physical Education, 1967. 120 p. (C. Heilman)

162. WILSON, William R. Disqualifying medical conditions for football participation in South Central Kansas Class B high schools. M.S. in Physical Education, 1967. 47 p. (N. Tremble)

163. YOUNT, Barry W. Junior high school interscholastic athletic programs in thirty public high school systems throughout the United States. M.S. in Physical Education, 1966. 42 p. (N. Tremble)

Eastern Illinois University, Charleston, Illinois (W. H. Groves)

164. ACKSELL, Glennon J. A study of interscholastic wrestling injuries in the State of Missouri during the 1965-66 season. M.S. in Education, 1966. 45 p. (W. Groves)
Forty-nine coaches responded to a 3-page questionnaire dealing with injuries to over 2,000 participants. Information was obtained concerning the body part injured, cause of injury, how the injury occurred, and the experience status of both the wrestlers and coaches. Major findings were that: poor conditioning was the leading cause for most injuries; muscle strain was the most frequent tissue injury; the ear was the specific body part injured most often; and the number of years' experience of the wrestler or coach had no effect on injury incidence.

165. CUTLIP, John L. The effect of grip strength on success in high school wrestling. M.S. in Education, 1967. 37 p. (W. Lowell)
Twelve schools and 462 interscholastic wrestlers, located in northern Illinois, were represented in this study. Prior to each regularly scheduled match, contestants within a specific weight group recorded left and right hand grip strength on a dynamometer. Results showed that the 95-, 103-, 145-, and 165-pound weight-class winners had significantly stronger grip strengths; and the biserial correlation was statistically significant for 8 of the 12 weight classes.

166. DUDLEY, Jimmie E. The effect of the one-point field goal on the outcome of selected college basketball games. M.S. in Education, 1967. 24 p. (W. Groves)
Accurate recording of all shots attempted was made in 21 varsity games played by Eastern Illinois University's basketball team during the 1966-67 season. Successful shots were re-evaluated so that those made within the free-throw lane area were given a one-point evaluation instead of 2 points. The actual total score of each game was readjusted to see what the outcome might have been if the shots in the free-throw area were counted as one point. Results: the one-point field goal would have changed the outcome of 3 of the games, made another a tie, and reduced the scores of all games. It was concluded that more games would have been altered in the outcome if the players were playing under the one-point field goal scoring method.

167. FENTON, Royden K. A student to determine inequity in competition based upon total enrollment in selected public high schools. M.S. in Education, 1966. 67 p. (W. Groves)
The win-loss records of 40 high schools in Chicago were analyzed in reference to football, basketball and wrestling for the year 1964-65. The enrollments were adjusted on a scale which classified schools as being 20 percent larger; 20 percent smaller; or neither 20 percent larger or smaller. Results in football: when the selected school was 20 percent larger than its opponent it won 59 percent of its games. When the selected school was 20 percent smaller than its opponent it won 39 percent of its games. When the selected school was neither

20 percent larger nor 20 percent smaller than its opponent it won 52 percent of the games. When the selected school was 40 percent larger than its opponent it won 64 percent of the games. When the selected school was 40 percent smaller than its opponent it won 38 percent of the games. When the selected school was neither 40 percent larger nor 40 percent smaller than its opponent it won 47 percent of the games. A similar analysis was done for basketball and wrestling.

168. GEURIN, William L. A study to determine the effects of extraneous visual cues on the accuracy of shooting a basketball. M.S. in Education, 1966. 20 p. (W. Groves)

The study was undertaken to measure the validity of the technical implications involved in using the rim only as a target for accurate shooting. Twenty varsity players were chosen as subjects and were tested for accuracy in shooting a number of shots from various areas surrounding the basket under normally lighted conditions. They were tested again under darkened conditions with only the basket rim visible. Shooting was significantly more accurate under the lighted condition.

169. GORGAL, Allan H. Factors influencing the organization and administration of intramural programs for boys in secondary high schools in a selected geographical area of Illinois. M.S. in Education, 1966. 70 p. (W. Riordan)

A questionnaire related to intramural policies and procedures was sent to 118 high schools located in east-central Illinois. Of the 107 who replied 72 percent did not conduct a program for boys. Nineteen schools, with enrollment of 500 students or less, conducted a program. No school with 1501-2000 students conducted a program. A majority of the intramural directors were trained in physical education, and 50 percent of the schools required physical examinations prior to participation.

170. HOPEK, Richard. Effect of overload on the accuracy of throwing a football. M.S. in Education, 1967. 26 p. (M. O'Brien)

Twelve male college students, having experience as backfield men, were divided into two groups - a control and an experimental group. The control group used a regulation ball, and the experimental group used a weighted ball. During each of 13 training periods, the subjects threw the ball 15 times at a moving target at 10- and 15-yards consecutively. Results showed the experimental group improved more in accuracy than did the control group, but statistically there was no significant difference in either group's improvement in accuracy.

171. JUSTIS, Joel A. The history of intercollegiate track and field at Eastern Illinois University from 1912 through 1966. M.S. in Education, 1967. 400 p. (M. O'Brien)

The history of track and field at Eastern Illinois University covers a little more than 5 decades of competition. Recordings of various meet scores throughout the years is included in the text, along with names of team competitors and coaches.

172. KIMBALL, James A. Knowledge of baseball rules and game situations possessed by Little League umpires. M.S. in Education, 1966. 36 p. (W. S. Lowell)

A test of 25 questions was validated and given to 40 experienced Little League umpires. The first 18 questions, which consisted of general baseball rules, had a correct answer percentage of 53.1. The last 7 questions, which consisted of Little League rules specifically, had a correct answer percentage of 34.1. The over-all average of correct answers for the entire test totaled 47.8. Conclusion: Little League umpires included in this study were inadequate in their knowledge of rules interpretation.

173. McPEAK, Val Gene. The relationship of strength in selected muscle groups to agility and forearm performance time. M.S. in Education, 1967. 39 p. (W. Groves)

Thirty football players were measured for strength of the flexor and extensor muscles of the forearm and of similar muscles of the lower leg. Three tests of agility were administered: Revised Penny cup test - to measure change of direction; Pennybaker prone to standing movement test - to measure quickness of body movement; and Bass dynamic balance test. Forearm performance time was measured by the Dekan automatic performance analyzer. Results showed a significant relationship between lower leg extension strength and balance; a significant inverse relationship between strength in forearm flexion and quickness of body movement, and forearm performance (extension) and quickness of body movement; no significant relationship between strength and total body agility; and no significant relationship between strength of arm muscles and forearm performance times (flexion and extension).

174. NEECE, Donald E. The effects of participation in professionally related areas of physical education on the scholastic achievement of selected physical education majors. M.S. in Education, 1966. 23 p. (W. Groves)

The study included 61 percent of the male junior and senior physical education majors who had been enrolled at Eastern Illinois University between fall, 1962 and spring, 1966. The grades received during periods of high participation were compared with those received during periods of low participation. Participation involved intercollegiate athletics, intramurals, and professional club activity. Significantly better grades were earned during periods of low participation.

175. SCHMITZ, Theodore J. Comparison of general athletic ability of four groups of college athletes as measured by Cozen's test of general athletic ability for college men. M.S. in Education, 1967. 41 p. (M. O'Brien)

Forty athletes, comprising groups of 10 skilled in the sports of football, basketball, baseball, and track and field, were tested by Cozen's general athletic ability test for college men to determine if successful performance in any one of the selected sports could be used to predict all-around participation ability. Results showed no significant difference in general or all-around athletic ability between varsity athletes in the four sports.

176. SMITH, Jerry D. A study to determine the fastest pivot a second baseman could use in completing a double play. M.S. in Education, 1967. 31 p. (M. O'Brien)

Pivot A was defined as stepping off the back side of second base and throwing to first base. Pivot B was defined as tagging second base, "crow-hopping," and throwing to first base. Pivot C was defined as tagging second base, throwing from that position, and riding out the on coming player. Seventy-five trials for each pivot were made by 5 infielders, each performing 25 pivots in each of the three positions. A Dekan automatic performance analyzer was used to record times. Results showed Pivot C to be significantly faster than either Pivots A or B. Pivot B was slightly faster than Pivot A.

177. THOMAS, Stephen. A comparison of the relationship between running speed and agility. M.S. in Education, 1966. 26 p. (C. Twenter)

Subject's speed was measured for the last 40 yards of the 100-yard dash, and agility was measured with McCloy's zig-zag run. Twenty subjects from the freshman baseball team were selected for testing. A Dekan automatic performance analyzer was used to time all tests to 1/100 of a second. Running speed and agility were found to correlate .624.

178. TWENTER, Valerie S. The effect of selected motor activity on the social adjustment and motor educability of educable mentally handicapped children. M.S. in Education, 1967. 35 p. (M. Daves)
Sixteen intermediate educable mentally handicapped children were divided into experimental and control groups. Both groups were equated as to chronological and mental age and were tested on the Bass test of dynamic balance and the modified Penny cup test. The Vineland social maturity scale was used to measure social adjustment. Results showed the mean times for the Bass test (after 8 weeks of instruction) were significantly better for the experimental group; there was no significant difference in the mean times of the two groups on the Penny cup test; and there was no significant difference between the mean social quotient of the two groups' performance on the Vineland scale.

179. ZELLER, Barton W. A comparison of three hand positions of a right-handed pitcher on the pick-off move to first base in baseball. M.S. in Education, 1966. 35 p. (W. Groves)
The study was conducted in an attempt to determine which of three positions of the hands of a right-handed pitcher's pick-off move to first base resulted in the shortest elapsed time. Position A was at the set position, wherein the hands were held for one second at belt level. Position B was where the hands were extended overhead. Position C followed Position B in that the pitcher lowered his hands from the top of the stretch and without coming to a complete stop, as in Position A, separated his hands and threw to first base. Ten pitchers of the St. Louis Cardinals' Major and Minor Baseball League were tested on a Dekan automatic performance analyzer and timed to 1/100 of a second. No difference was found between the three positions as to shortest elapsed time on the throw to first base.

Florida State University, Tallahassee, Florida (P. W. Everett)

180. CHEATHAM, Mary Jane. Hourly variation in blood lactate concentration. M.S. in Physical Education, 1967. 36 p. (M. F. Hall)
The hourly blood lactate concentration of 8 female undergraduate students was determined over a 2-day period in a controlled environment. The subjects were confined to a laboratory, given meals at specific times, and were not allowed to exert themselves in any manner throughout the testing period. Five of the subjects had one significant blood lactate concentration variation throughout the day and 3 subjects had 2 significant variations. As a group, 6 of the 12 hour-to-hour blood lactate concentrations varied significantly throughout the day.

181. CHURDAR, John A study of the effect of four different frequencies of a specific exercise program on physical fitness. Ed.D. in Physical Education, 1967. 92 p. (P. W. Everett)
The beginning level of physical fitness of subjects in one control and 4 experimental groups was achieved by participating in the RCAF 5BX Plan 2 days per week for a 19-week period prior to the experimental period. Physical fitness was measured every 3 weeks during the 12-week experimental period by a modified step-up test. Results indicated significant improvement in physical fitness in the groups that engaged in the exercise program 2 days, 3 days, and 6 days per week in addition to going all-out every 3 weeks. The control group had a slight decline in physical fitness but was almost able to maintain its level by going all-out every 3 weeks.

182. CLARK, Faith. The Salem Madness: A choreographic work. Ph.D. in Physical Education, 1967. 200 p. (N. W. Smith)
The Salem Madness is a choreographic work based upon the phenomenon

of the witch hunt, as revealed through research in the fields of history, psychology, and sociology. The historic events of the Salem witchcraft trials of 1692; factors pertaining to mass hysteria, prejudice, and religious bigotry; and component characteristics of Puritan life are representative of the 3 general categories of ideological materials upon which the choreography was based. Study of the witch hunts through history revealed trends which were generalized into movement patterns and behaviors. The choreographer was influenced by general aesthetic principles and by the primary and secondary elements of the dance craft in the choreographic development of the ideological materials.

183. CRONK, Joyce M. The effect of physical practice, mental practice, and physical-mental practice on the development of arm strength. Ph. D. in Physical Education, 1967. 57 p. (P. W. Everett)

Female undergraduate students (N=24) served as subjects and were assigned to a control and 3 experimental groups. Subjects performed 10 maximum sustained isometric contractions on the cable tensiometer physically and/or mentally 3 times weekly. Following 8 weeks of training, results indicated that groups that physically practiced were most superior in the development of strength, and groups that did not do mental practice were superior to groups that did.

184. GIRARDIN, Yvan. The comparative effects of two levels of training intensity on human adaptation to a state of stress. Ph. D. in Physical Education, 1967. 84 p. (P. W. Everett)

The 17-ketosteriod elimination through the urine was used to assess the influence of a physical stressor (pedalling the bicycle ergometer) upon the adrenocortical system of male subjects. The training regimen was pedalling a bicycle ergometer daily for 4 weeks. For one group of subjects each training session was terminated when a 180 heart rate was reached, while a 150 heart rate was the cut-off point for a second group. A third group served as a control unit and did not train. Analysis of the data indicated that there were no significant differences in 17-ketosteroid output and resting heart rate among the groups. Significant differences were observed among the groups in respect to the duration of the exercise bout on the ergometer, and the larger gain exhibited by the 180-group over the 150-group was attributed to the intensity level of the training session.

185. HARROW, Anita J. The effects of training on blood flow recovery rates of the lower limb of a human following bilateral saphenous venectomy. Ph. D. in Physical Education, 1967. 115 p. (K. D. Miller)

The subject was a healthy, active female with diagnosed valvular inefficiencies in both limbs which were considered to be in a state of training prior to surgery. Following surgery with both limbs in similar condition regarding reactive hyperemic response to exercise, an endurance training program was undertaken to determine the effect of training on a postoperative limb. It was concluded that following saphenous venectomy the rate of venous return decreased, possibly due to venous congestion caused by the fewer return vessels. Vascular adjustment as indicated by comparisons of the reactive hyperemic curves did not appear to be completed within 8 weeks following surgery and training.

186. HIDLEBAUGH, Wilford Murray. Comprehensive plan of parks and recreation facilities for Murat neighborhood. M. S. in Recreation, 1967. (W. J. Trait)

187. JARRETT, James. A study of the effects of time, endurance and

scoring variables on tennis results as measured by the traditional scoring system and the Van Alen simplified scoring system. Ph. D. in Physical Education, 1967. 68 p. (P. W. Everett)
Players from the Florida State University Tennis Team (N=14) and an intermediate tennis class (N=14) played separate round robin tournaments using both scoring systems. There were no significant differences between mean traditional match times and mean VASSS match times. Traditional total points played per match and variability of the total points per match were significantly greater than in VASSS. Traditional and VASSS ranked results based upon win-loss records showed significant rho correlations of .90 at the advanced level and .91 at the intermediate level.

188. KORB, Roslyn. Playground: A choreographic work. M. S. in Dance, 1967. 66 p. (N. W. Smith)
A dance composition entitled Playground with a musical base of modern jazz and with an ideological base of children's games was produced for this study. Four musical pieces by 4 different composers were selected; choreography was designed which reflected the thematic material; the composition was taught to 12 dancers from the Theatre Dance Group at Florida State University; and it was presented in a public performance on March 3 and 4, 1967. The suite consisted of the following dances: "Looking for a Friend," "Hopscotch," "Follow the Leader," "The Interlude," "Jump Rope and Dodge," "Tag," and "The Female." The sequence of dances was arranged and transitions were developed to achieve a unified whole.

189. PATTON, Robert W. The effect of endurance training on the cardiovascular adaptation capacity of pre- and post-adolescent males. Ph. D. in Physical Education, 1967. 64 p. (P. W. Everett)
Twenty-two male pre-adolescent and post-adolescent subjects were divided into 4 groups - an experimental and control group in each maturational classification. Pre- and post-tests consisted of walking on a treadmill; the variables observed were the duration of exercise, oxygen consumption values, and maximal oxygen consumption values. During the experimental period the 2 experimental groups walked on a treadmill at a standardized work load until a 180 heart rate was reached, 5 days a week for 7 weeks. The results indicated that although significant differences were found between the experimental and control groups, there was no significant difference between the pre- and post-adolescents in regard to any of the variables used as measures of cardiovascular adaptation capacity to the endurance training.

190. PETERSON, Allyn A. "Half-life" recoveries of heart rates and blood lactates. M. S. in Physical Education, 1967. 39 p. (F. D. Rohter)
Nine male subjects performed the same near-maximal treadmill exercise. At the first session, blood samples were obtained at 1, 4, 7, 10, and 15 minutes subsequent to the exercise. The Ström colorimetric technique was used to determine blood lactate concentrations. During the second session postexercise heart rates were continuously recorded. "Half-life" recoveries of the physiological parameters, lactate and heart rate, were calculated. The first phase of recovery indicated inverse trends of blood lactate and heart rates. The second phase of recovery exhibited a correlation of .898 between the lactate "half-life" recovery and the heart rate "half-life" recovery.

191. ROGERS, Bruce Allan. A comparison of superintendents' and center directors' concepts of the recreation center director's position. M. S. in Recreation, 1967. 150 p. (D. V. Veller)

192. SONTGERATH, Gail E. The relationship between body temperature and scores on the Bass stick test. M.S. in Physical Education, 1967. 52 p. (M. F. Hall)
The Bass stick test was administered to 17 women students each hour from 7:00 A.M. to 10:00 P.M. for a total of 2 testing days with 32 scores being recorded for each subject. Body temperature, using an oral thermometer, was taken prior to the administration of each test. It was concluded that there was no significant relationship between body temperature and scores on the Bass stick test.

193. WADDLE, Benjamin. A study comparing the effects of training programs using isotonic exercises, isometric exercises, and the Exer-Genie on cardiovascular endurance and muscular strength. Ed.D. in Physical Education, 1967. 142 p. (K. D. Miller)
Male students (N=84) participated in training programs 3 days per week for 8 weeks. The Exer-Genie and isometric programs contained exercises which used back, leg, arm, and trunk muscles. The isotonic exercises used were sit-ups, curls, and running in place. The cable tensiometer was used on pre- and post-tests to measure strength of the knee, elbow, back, and hip flexors and extensors; and the Harvard step test was used to measure cardiovascular endurance. All programs produced significant increases in cardiovascular endurance and in strength measurements. The Exer-Genie program was found to be significantly better than the isotonic program for building strength in the back and hip flexors, but not in the other muscle groups. There were no significant differences between any of the three training programs in the development of cardiovascular endurance.

194. WOOD, Nan E. Elizabeth K. Zimmerli: A master teacher and administrator of physical education at Lock Haven State College from 1946 through 1966. M.S. in Physical Education, 1967. 139 p. (G. I. Fox)
The thesis includes a brief history of the department and development of the major program under Dr. Zimmerli's administration; her personal, educational, and professional background; and her retirement from the college. She had directed over 700 graduates, doubled her staff, and guided several major curriculum revisions. She also had a great influence on physical education in Pennsylvania as the first woman president of PSAHPER, an Advisor of Physical Education for the Pennsylvania Department of Public Instruction, and the only woman director of a men and women's program on the college level in the state.

University of Florida, Gainesville, Florida (C. A. Boyd)

195. LAMPMAN, James Joseph. Anxiety and its effect on the performance of competitive swimmers. M.A. in Physical Education and Health, 1967. 56 p. (C. W. Zauner)
The purpose of this study was to investigate the relationship of the psychological variable anxiety on the performance of competitive swimmers and to determine what difference, if any, could be found between swimmers of champion and nonchampion caliber. Fifteen members of the University of Florida varsity swimming team served as subjects. An anxiety test was given to the swimmers before the season and approximately 1 hour before the competition. The general conclusions drawn were: an upward fluctuation in anxiety one hour before competition facilitates performance; there were no significant differences in anxiety patterns between the two experienced groups; swimmers performed better if their pre-meet anxiety level was relatively equal to or slightly above their pre-season anxiety level.

196. O'CONNOR, Francis Joseph. The effect of Gatorade upon endurance in the one-mile run. M. A. in Physical Education and Health, 1967. 81 p. (L. F. Sterling)

The study investigated the ergogenic value of Gatorade, a drink designed to rapidly replace body salts lost through sweating. Forty-five male students enrolled in soccer classes acted as subjects. Three groups were formed, one group received Gatorade, another received a placebo and the third acted as a control. Testing occurred on three occasions, the test of endurance being the time required to run one-mile. Gatorade did not affect the times required to run one mile and therefore it was concluded that Gatorade had no ergogenic value as related to this event.

Fort Hays Kansas State College, Hays, Kansas (J. J. Belisle)

197. BOUSMAN, James R. A study of qualifications, salaries, and duties of male coaches of interscholastic athletics in the state of Kansas, 1965-66. M. S. in Physical Education, 1967. 62 p. (A. V. Hollister)

Illinois State University, Normal, Illinois (R. N. Singer)

198. AUSSPRUNG, Walter Robert. An analysis of two methods of teaching beginners to cross the shot put circle. M. S. in Physical Education, 1967. 47 p. (R. N. Singer)

Two equated groups of 24 boys, 14 and 15 years in age, put the shot 3 times per week for 4 weeks. The groups were equated according to such individual factors as age, height, weight, and standing putting distance. Each group was taught a different method of crossing the circle, prior to putting the shot: the Powell method and the traditional or Fuchs style method. In general, little difference was found between the groups in shot-putting performance.

199. BESSEMER, Ronald N. The effect of recovery methods on pulse rate following strenuous exercise. M. S. in Physical Education, 1967. 37 p. (R. N. Singer)

Subjects were members of the Illinois State University varsity wrestling team (N=12). Following the administration of the Harvard step test, 3 recovery methods were used: a 5-minute rest under a moderately cold shower, a 5-minute rest immersed in a moderately cold swimming pool, and a 5-minute rest lying in a supine position. There were no significant differences in pulse recovery as a result of the three methods.

200. CHALOUPECKY, Robert. A comparison of basketball shooting skill at a ten-foot and eleven-foot basket. M. S. in Physical Education, 1967. 76 p. (R. N. Singer)

Male basketball players (N=22) were tested on jump, set, and foul shots at baskets of different heights. Results showed that shooting ability at the 10-foot basket was significantly better than at the 11-foot basket. Accuracy between the three shots and at the two baskets was significantly different for all means tested. Shorter players were better shooters on all 3 shots at both baskets. Taller players adjusted more easily when transferring from the 10-foot to the 11-foot on the set and jump shots while the shorter players adjusted better on the free throw. A questionnaire answered by leading college and professional coaches showed that 83 percent of them favored the 10-foot basket.

201. JOHNSON, Judith A. The development of a volleyball skill test for high school girls. M. S. in Physical Education, 1967. 60 p.

(P. M. Scott)
Six trials of the Johnson overhead volley test were administered to 100 high school girls. A reliability coefficient of .93 was obtained and the test was validated against two criteria, judges' ratings and the French-Cooper repeated wall volley test. When correlated with a criterion of subjective ratings, the validity coefficient of the Johnson overhead volley test was found to be .74. When correlated with the criterion test, the validity coefficient was found to be .68. All correlations were found to be significant at the .01 level.

202. JORNDT, George S. The relationship between physical fitness and academic achievement. M. S. in Education, 1967. 44 p. (A. Gillett)
Freshman and senior high school boys (N=358) who ranked in the upper and lower 25 percent of their respective classes were used as subjects. The physical fitness test was constructed by the Maine West Physical Education Department. Class rank was determined by grade point average. No significant differences (.05 level) were found between physical fitness and academic achievement for either freshman or senior boys.

203. NEUMAN, Melton C. An investigation of two approaches to the learning of tennis skills. M. S. in Physical Education, 1967. 67 p. (R. N. Singer)
Forty male students enrolled in beginning tennis classes were divided into two homogeneous groups. One group learned tennis by the traditional method and the other by a programed method. There was, in general, no significant difference between the two groups in their development of tennis skill ability as determined from a comparison of pre- and post-tests on the Hewitt revised Dyer backboard tennis test. A chi-square analysis indicated that there was no significant difference between the groups in the number subjects progressing through each round of an elimination tournament administered at the end of the semester. Learning by the programed method produced significantly higher ratings on form.

204. READ, John D. Anthropometric and strength characteristics of the high school competitive gymnast. M. S. in Physical Education, 1967. 52 p. (A. F. Gillett)
The upper and lower one-third (N=26) of a group of gymnasts as determined by performance were used as subjects. Good gymnasts were found to average significantly less than poor gymnasts in measures of standing height, sitting height, iliospinal height, arm span, lower extremity length, and left and right upper arm extremity length. Good gymnasts were significantly more ponderous than poor gymnasts and were found to possess a proportionally greater chest breadth than chest depth.

205. VANDERBECK, Edna R. A cinematographic study of sculling patterns. M. S. in Physical Education, 1967. 116 p. (M. Gray)
Motion pictures of experienced swimmers performing head-first, arms-at-the-sides sculling were transcribed into drawings and the drawings were analyzed for evidence of common elements in the patterns of motion. With two minor variations, a sequence-of-motion pattern involving actions at the shoulder and elbow joints was found to be common to all 19 subjects. The ranges of motion at the elbow and at the shoulder varied widely among subjects. No relationship appeared to exist either between differences in range of motion at the two joints or between the differences in range of motion and the two minor variations in the motion pattern.

University of Illinois, Urbana, Illinois (A. W. Hubbard)

206. BOOTHBY, Mary J. Recruitment: reasons why women choose a physical education major at the University of Illinois at Champaign-Urbana. M. S. in Physical Education, 1967. 138 p. (A. T. Cheska)

207. CANTILENO, Joyce E. The effect of concentration on difficult volleyball skills. M. S. in Physical Education, 1967. 50 p. (A. W. Hubbard)

208. CARIUS, Allen B. The effect of altered time cues on decisions of fatigue and the pulse rate. M. S. in Physical Education, 1967. 37 p. (A. W. Hubbard)

209. CERVENY, Glenn R. An analysis of values derived from sports and physical recreation by severely physically disabled college students. M. S. in Recreation, 1967. 106 p. (A. V. Sapora)

210. CORROLL, Victor A. AAHPER youth fitness test items and maximal oxygen intake. Ph. D. in Physical Education, 1967. 123 p. (T. K. Cureton, Jr.)

211. DI LIBERTO, Marilyn L. The effects of aging on the total peripheral resistance of women. M. S. in Physical Education, 1967. 49 p. (T. K. Cureton, Jr.)

212. EWING, Martha E. Participation and nonparticipation of women in intramurals at the University of Illinois. M. S. in Physical Education, 1967. 51 p. (D. O. Mathews)

213. FARDY, Paul S. The effects of soccer training and detraining upon selected cardiac and metabolic measures. Ph. D. in Physical Education, 1967. 141 p. (T. K. Cureton, Jr.)

214. FRANKS, B. Don. Effects of training on cardiac intervals and other fitness measures. Ph. D. in Physical Education, 1967. 187 p. (T. K. Cureton, Jr.)

215. GETTMAN, Larry R. Effects of different amounts of training on cardiovascular and motor fitness of men. M. S. in Physical Education, 1967. 99 p. (T. K. Cureton, Jr.)

216. GRENINGER, Leonard O. Effects of frequency of running on the progressive pulse ratio and other cardiorespiratory measures of adult men. M. S. in Physical Education, 1967. 91 p. (T. K. Cureton, Jr.)

217. GUALTIERE, William S. A comparative study of the effects of two training programs on blood. Ph. D. in Physical Education, 1967. 281 p. (T. K. Cureton, Jr.)

218. GUILLAUME, Marilynn Grace. An annotated bibliography of bibliographies in English on leisure, recreation, parks, and related topics, and an analysis of bibliographic control. M. S. in Recreation, 1967. 190 p. (A. V. Sapora)

219. HENKEL, Donald Dale. Assessment of effects of an acting experience upon participants in a public recreation department children's dramatic program. Ph. D. in Recreation, 1967. 196 p. (A. V. Sapora)

220. HERB, Sharyn Sipe. Effectiveness of the whole- versus part-method of teaching beginners to swim. M.S. in Recreation, 1967. 35 p. (A. V. Sapora)

221. HILL, Phyllis J. A cultural history of frontier sports in Illinois, 1673-1820. Ph.D. in Physical Education, 1967. 149 p. (E. F. Zeigler)

222. HORNYAK, Michele M. The effects of a brief run-walk program on the physical fitness of college women. M.S. in Physical Education, 1967. 79 p. (R. H. Pohndorf)

223. INGLIS, Hugh J. Selected dynamometer strengths of adult men twenty-six to twenty-nine. M.S. in Physical Education, 1967. 68 p. (R. H. Pohndorf)

224. JARBOE, Priscilla S. Student involvement in administration of women's intramural programs. M.S. in Physical Education, 1967. 62 p. (D. O. Mathews)

225. JETTE, Maurice J. Progressive physical training effects on anxiety in middle-aged men. M.S. in Physical Education, 1967. 109 p. (T. K. Cureton, Jr.)

226. KARABIN, Victor Bernard. A comparison of young drivers and older drivers on brake response and accelerator release times under distracting conditions. M.S. in Health Education, 1967. 94 p. (W. J. Huffman)

227. KATZENELLENBOGEN, Edith Helen. Comparison of boys and girls (eight to twelve) on physical fitness measures. M.S. in Physical Education, 1967. 138 p. (T. K. Cureton, Jr.)

228. KOHLER, James W. The validity and reliability of the rotometer cardiovascular test. M.S. in Physical Education, 1967. 43 p. (A. W. Hubbard)

229. MERKI, Donald John. The effects of two educational methods and message themes on rural youth smoking behavior. Ph.D. in Health Education, 1967. 291 p. (H. S. Hoyman and W. H. Cresswell, Jr.)

230. MOLNAR, Sandor. Adult fitness improvement and maintenance by progressive rowing machine training. M.S. in Physical Education, 1967. 131 p. (R. H. Pohndorf)

231. MOORE, Robert John, Jr. A study of football injuries in three universities. M.S. in Health Education, 1967. 90 p. (A. E. Florio)

232. MOORE, Roy Douglas. Factors influencing total peripheral resistance among boys. Ph.D. in Physical Education, 1967. 163 p. (T. K. Cureton, Jr.)

233. MURPHY, Harvey Frank. A comparison of techniques for estimating the amount of fat in the human body and regression equations for predicting the amount of potassium in the human body. Ph.D. in Physical Education, 1967. 140 p. (T. K. Cureton, Jr.)

234. NESS, Richard Andrew. Determination of the relationship between

baseball hitting success and the Nelson reaction timer. M.S. in Physical Education, 1967. 52 p. (R. H. Pohndorf)

235. OSCAI, Lawrence B. *Effects of training on blood volume and physical fitness tests.* Ph.D. in Physical Education, 1967. 134 p. (T. K. Cureton, Jr.)

236. POLLOCK, Michael L. *Effects of frequency of training on working capacity, body composition, and circulo-respiratory measures.* Ph.D. in Physical Education, 1967. 155 p. (T. K. Cureton, Jr.)

237. POPEJOY, D. Imogene. *The effects of a physical fitness program on selected psychological and physiological measures of anxiety.* Ph.D. in Physical Education, 1967. 215 p. (T. K. Cureton, Jr.)

238. RIBISL, Paul M. *Effects of training upon the maximal oxygen intake of middle-aged men.* Ph.D. in Physical Education, 1967. 182 p. (T. K. Cureton, Jr.)

239. RICHTER, Peter. *The historical relationship of some selected volleying, noncontact, court ball games.* M.S. in Physical Education, 1967. 114 p. (E. F. Zeigler and A. C. Moore)

240. SCHAD, Ronald A. *An analysis of research relating to basic instruction programs in physical education for men.* M.S. in Physical Education, 1967. 535 p. (J. E. Razor and E. F. Zeigler)

241. SCHLEGEL, Ronald P. *Factors influencing the decision to major in physical education.* M.S. in Physical Education, 1967. 113 p. (H. J. VanderZwaag)

242. SCHLEICHER, Richard C. *Physical fitness changes of varsity swimmers training with weights, elastic cords, and swimming.* M.S. in Physical Education, 1967. 76 p. (R. H. Pohndorf)

243. SCHMIDT, Richard A. *Motor factors in coincident timing.* Ph.D. in Physical Education, 1967. 103 p. (A. W. Hubbard)

244. SEFFRIN, John Reese. *A revision of the Dann Family health test.* M.S. in Health Education, 1967. 77 p. (W. H. Cresswell, Jr., and D. B. Stone)

245. SHERMAN, Michael A. *Maximal oxygen intake changes of experimentally exercised junior high school boys.* Ph.D. in Physical Education, 1967. 223 p. (T. K. Cureton, Jr.)

246. SMITH, Ralph W. *The progressive, competitive, and postseason changes in selected physical fitness characteristics of eleven wheelchair basketball players.* M.S. in Physical Education, 1967. 77 p. (R. H. Pohndorf)

247. SPAETH, Marcia J. *An analysis of administrative research in physical education and athletics in relation to a research paradigm.* M.S. in Physical Education, 1967. 169 p. (E. F. Zeigler)

248. STAUFFER, Delmar J. *A revision of the Cresswell consumer health knowledge test.* M.S. in Health Education, 1967. 70 p. (W. H. Cresswell, Jr., and D. B. Stone)

249. SWARD, Sydney Bernard. *The metabolic cost of selected gymnastic*

routines. Ph. D. in Physical Education, 1967. 109 p. (T. K. Cureton, Jr.)

250. WEIMAR, David Louise. Foundation philanthropy as related to the field of municipal parks. M. S. in Recreation, 1967. 186 p. (A. V. Sapora)

251. WILHAM, Sandra L. Swimming endurance development in swimming programs of college women. M. S. in Physical Education, 1967. 128 p. (T. K. Cureton, Jr.)

252. WOODS, Melvin Leroy. A study of activities, interests and significant factors affecting the leisure-time experiences of selected groups of disabled males enrolled at the University of Illinois during 1965-66. M. S. in Recreation, 1967. 240 p. (A. V. Sapora)

Indiana University, Bloomington, Indiana (J. M. Cooper)

253. ADKINS, Bernice Lee. The development of Negro female Olympic talent. P. E. D., 1967. 317 p. (E. A. Davies)

An attempt was made to determine the influence education and social factors had on guiding Negroes toward the coming Olympic competition. The commonality of social educational factors was determined from the responses to a questionnaire. It was found that there were a number of common factors such as: the South appeared to provide experiences necessary for developing track and field competence in most of these Negro women; although male physical education teachers or coaches in public schools identified and trained most of them, this did not appear to be an unfavorable factor in their development; and participation in a sound, well-planned training program during the years of competition appeared responsible for developing the skills needed for championship performances.

254. BERGSRUD, Owen Burnell. The effect of varying the probability of occurrence of intervals upon simple reaction time. P. E. D., 1967. 146 p. (A. T. Slater-Hammel.)

The randomized blocks design was used to analyze the data of 70 freshman male students to determine the effect of practice and the effect of presenting an equal porportion of stimuli at each foreperiod interval upon simple reaction time. Duncan's multiple range test was used where appropriate, to evaluate the differences between the daily, group, and foreperiod interval means. The largest increase in reaction time was observed from the first to the second day and a significant increase occurred between each day over the 5-day period.

255. BRATTAIN, William Edwin. An analysis of the leisure-time activities of Manchester College students. Re. D., 1967. 229 p. (T. R. Deppe)

The questionnaire technique was used and was validated by both a jury of experts in the field and one from the Manchester faculty. A total of 1148 questionnaires were completed. The results were divided into three sections: personal data, leisure activities, and desire for additional programs and facilities. It was found that over one-half of the communities from which Manchester students come are not providing the young people with a good example of community recreation in action.

256. CLIFFORD, Jacqueline Ann. The interrelatedness of dance with music and art through a study of form as a unifying concept. P. E. D., 1967. 175 p. (E. A. Davies)

Form as structure more readily lends itself to an analysis of commonalities among the three arts. The four elements of line, rhythm, unity and variety derived from modern dance are inherent elements in art and music and essential elements in the attainment of form in each of the art areas. It was determined that the theoretical construct of form as a unifying concept is dependent upon the ordering of the elements and their common components, and the theoretical construct of form is a basis for the dance teacher to use in interrelating dance with music and art.

257. GLINSKI, John Val. A comparative study of fartlek, sprint, and interval training. P. E. D., 1967. 208 p. (K. W. Bookwalter)
The covariance statistical technique was used in analyzing the data of 77 freshman college males to determine whether there were any significant differences among the training groups in the development of leg strength, measured by the leg dynamometer; speed in running measured by 60-yard dash, and cardiovascular endurance, measured by the Harvard step test and the 880-yard run. It was found that the fartlek, sprint and interval methods of training are equally effective in developing leg strength; the fartlek and interval methods of training are more effective than the sprint method in developing cardiovascular endurance as measured by the 880-yard run; progressive physical training of 16 40-minute sessions over an 8-week period is sufficient for improving the physical fitness items investigated in this study.

258. JONES, Robert William. Sociological implication of the factors affecting participation in leisure-time activities of the public high school students in Illinois in relation to academic achievement. Re. D., 1967. 211 p. (T. R. Deppe)
A survey instrument was developed and validated by a selected jury. A random sample from 408 twelfth grade students enrolled in the Illinois public high schools was used. Chi square was calculated to determine relationships between academic achievement and leisure. Outside influences such as television and automobiles had more influence on the student with low academic record. The peer group had more influence on the decisions of the youth than did the home, church or school. The schools' extracurricular activitiy program attracted very few of the students with low academic achievement.

259. O'BRIEN, William Edward. An analysis of recreation leadership personnel practices in selected park and/or recreation departments in Illinois. Re. D., 1967. 211 p. (G. G. Eppley)
The executives of 86 departments were interviewed and asked to provide data relative to the questionnaire. The analysis of the results included facts and descriptive data of the departments, budgetary procedures and personnel practices. The evidence indicates that the state of Illinois has adequate permissive legislation for the operation of park and recreation departments; however, some undesirable personnel practices confront recreation leadership in the state of Illinois.

260. PARSON, Donald Ray. An analysis of students' opinions related to driver and traffic safety education in selected Indiana secondary schools. H. S. D., 1967. (B. I. Loft)
A questionnaire was administered to all available students in 15 selected schools having an enrollment of 500 or under who had successfully completed a course in driver and traffic safety education during the school year 1965-66. On the basis of this investigation it was determined that the driver and traffic safety education programs do not provide adequate preparation for beginning automobile operators; preparation received is not equally adequate for the male and female students; there is insufficient instruction and omission of instruction, the driver and traffic safety

education programs are not overemphasized; and the allotment of a minimum of 6 hours of driving time is not sufficient for the development of necessary driving skills.

261. RAUS, Robert Paul. An analysis of duties performed by church recreation directors of the Southern Baptist Convention. Re. D., 1967. 254 p. (T. R. Deppe)
A complete list of duties thought to be performed by church recreation directors was developed through the personal interview technique. A list of duties was combined with a request for personal and job situation information and developed into a check list. Thirty full-time church recreation directors were requested to evaluate each duty as to frequency of performance, importance, and difficulty. It was found that the duties rated highest in importance and performed by a high percentage of directors tended to be the most difficult to perform.

262. SHULTS, Fredrick Davis. The history and philosophy of athletics for men at Oberlin College. P. E. D., 1967. 373 p. (J. B. Daugherty)
Official records of the General Faculty Committee Minutes, annual reports, annual catalogues, alumni magazines, student newspapers and yearbooks were the source of information used in this study. Oberlin has a tradition dating back to the founding of the College of promoting physical education. Since athletics has become an integral part of the physical education program and both physical education and athletics are available to all students, it was concluded that Oberlin College made a unique contribution to the development of athletics as a form of formal education.

263. SKELTON, Cleo Horace. The life of Lebert Howard Weir, his recreation philosophy, and his major contribution to the profession. Re. D., 1967. 351 p. (J. R. MacLean)
Literature concerned with the writing of biographies, a jury of 20 recreation professionals, questionnaires and interviews were used for the study. Weir's contributions to recreation were: the promoting of leadership; promoting the idea of parks and recreation as one unit; editing, writing of books and magazine articles; conducting surveys and studies; getting communities to create recreation departments; stressing the significance of recreation; giving advice on legislation; teaching people to live close to nature; and encouraging colleges and universities to introduce professional curriculums, and to offer consultant services to communities.

264. STUMPNER, Robert Louis. Blood flow changes in the human forearm during physical training and detraining. P. E. D., 1967. 126 p. (J. E. Counsilman)
The subjects were 8 highly trained swimmers and 8 untrained male students. Throughout the training and detraining period each subject reported once every 3 weeks for forearm blood flow determinations at rest, during a prescribed exercise, and for several minutes after exercise. The technique was venous occlusion plethysmography. Apparently as a result of prolonged physical training, blood flow rates are increased, and conversely, cessation of training results in a subsequent decrease in blood flow rate. High blood flow rates immediately after exercise are likely to be indicative of high rates during exercise.

265. WHITED, Clark Vincent. An investigation of the state contract method of purchasing physical education supplies for the New York State public schools. P. E. D., 1967. 249 p. (K. W. Bookwalter)
A survey instrument was constructed and sent to a proportional sample

of New York school districts. It was determined that cooperative purchasing by the district directors of physical education through the State contract system has been slow in its development. Incentives need to be provided at the local level in order to increase participation in purchasing through the State contract system if it is to be effective. District directors of physical education place a high value on the services rendered by athletic goods salesmen. The utilization of the State contract system by district directors for the purchase of physical education supplies is very limited.

266. ZABIK, Roger Matthew. The effect of isometric exercise at selected angles in the range of motion for knee extension for the development of strength. P. E. D., 1967. 123 p. (G. F. Cousins)
The strength of 33 college men was measured before and after an isometric exercise program lasting 37 days. The control group did not participate in the exercise program. Strength measures were secured at 5 angles in the range of motion for extension of the preferred knee. It was determined that the transfer of training stimulus from an exercised angle to a nonexercised angle is dependent upon the proximity and number of exercised angles. Exercising at 30 degree intervals isometrically in the range of motion for knee extension will produce strength gains at intermediate nonexercised angles.

University of Iowa, Iowa City, Iowa (L. E. Smith)

267. ANSORGE, Charles J. The effects of three types of weight training on starting time, running time, and performance time for the fifteen and fifty-yard dashes. M.A. in Physical Education, 1967. 171 p. (G. M. Asprey)
The purpose was to compare the effects of 3 programs of weight training in terms of starting time, running and performance times for 15, 35, and 50 yards, back strength, and leg strength. The subjects (N=92) were assigned to the following groups: static-contraction group, dynamic-contraction group (6-lift maximum), dynamic-contraction group (15-lift maximum), physical-conditioning group, and control group. Conclusions were that no one of the group activities had any more effect on starting time than any other. The use of weight training programs was superior to no weight training for improvement in running time and performance time for the 15-yard dash. The use of dynamic-weight-training programs was superior to no weight training for improvement in running time for 50 yards. Weight training programs and physical conditioning activities were superior to no weight training or no physical conditioning for improvement in back strength. Weight training programs were no better than physical conditioning class activities for improvement in many of the variables.

268. BAUMGARTNER, Ted A. The applicability of the Spearman-Brown prophecy formula when applied to selected physical performance tests. Ph.D. in Physical Education, 1967. 169 p. (D. R. Casady)
The data collected from approximately 260 subjects were 12 standing broad jump scores, 8 shuttle run scores, 24 reaction time scores and 24 speed of movement scores. One-half the scores for a test were collected on each of 2 days. The results indicated that the test-retest method is more appropriate than the split-half for the measurement of reliability. The use of the Spearman-Brown prophecy formula to predict the upper limit of the reliability of a physical performance test composed of a specified number of test trials is acceptable provided certain stipulations are met.

269. CARLSON, N. Thomas. The appropriateness of the analysis of covariance to the simple-randomized design in physical education research. Ph.D. in Physical Education, 1967. 124 p. (D. R. Casady and D. W. Norton)

The design was a simple-randomized experiment which involved 4 groups of 16 subjects per group. The experiments were created by means of the I. B. M. 7044 computer with which an X-score and a Y-score were generated for each subject in each experiment. For each situation of assumption violation, 5 thousand experiments were generated to determine the mean square distributions for each of 6 analyses. The analyses were as follows: analysis of variance on Y-scores; analysis of covariance; analysis of variance on b(w) adjusted scores; analysis of covariance on b(j) adjusted scores; analysis of variance on b(j) adjusted scores; and analysis of gains. Methods of analysis were compared and analyzed.

270. CHEW, Richard A. Reading as an instructional method for learning a motor skill. M.A. in Physical Education, 1967. 48 p. (L. E. Smith)

College students (N=134) were divided into 6 groups. The traditional group received lecture and demonstration followed by physical practice of the skill. The traditional-homework group received identical treatment with the addition of reading of the skill as an extra class assignment. The reading group read of the skill during practice sessions. The reading-practice group read the description of the skill half the time and physically practiced the remaining time. The reading-traditional group read of the skill half the time and also received lecture and demonstration prior to physical practice. The control group received no practice instruction between the initial and final tests. The bar snap for distance, performed on the horizontal bar, was selected as the motor skill to be learned. According to the results, all groups were found to have significantly larger final mean scores than their respective initial mean scores. The traditional and traditional-homework groups were significantly different from the control group. The groups to which the various reading techniques were administered were not as effective as the groups which experienced the greater number of physical practices.

271. COLGATE, Thomas P. An evaluation of the public relations programs of physical education departments in selected colleges and universities in the State of Iowa. Ph.D. in Physical Education, 1967. 204 p. (L. E. Alley and F. D. Stone)

The public relations programs of the physical education departments of 10 institutions selected from a stratified random sample of colleges and universities in the State of Iowa were studied. It was concluded that the efforts in public relations extended by the departments of physical education were not planned programs. Most of the public relations efforts that were extended by the departments were incidental. The relationships between the heads of departments and the directors of public relations for the institutions were good but, on the whole, cooperative efforts between the two for departmental public relations were lacking. It was also found that the departments of the 10 selected institutions had no planned public relations programs, and that the limited public relations that were being carried on were incidental to the regular academic program.

272. HAY, James Gordon. An investigation of mechanical efficiency in two styles of high jumping. Ph.D. in Physical Education, 1967. 172 p. (L. E. Alley)

Three subjects jumped using the western-roll style and 3 jumped using the straddle style. A force-platform designed to sense forces exerted in three orthogonal directions upon its upper surface was used to obtain data concerning the take-off forces exerted by the subjects. Two cathode-ray oscilloscopes and an oscilloscope camera were used to obtain records of the forces exerted upon the force-platform. The difference between the maximum height cleared and the maximum theoretical height (i. e., computed height) to which the subject's center of gravity rose was used as a measure of the efficiency of the positioning of his body at the peak of the jump. Results suggested that there are points relative to the jumper's standing height and standing-center-of-gravity height, below which the over-all efficiency of the western-roll style exceeds that of the straddle.

273. RITH, Donald Gordon. A history of organized public recreation in Iowa City, Iowa. M. A. in Recreation, 1967. 111 p. (E. A. Scholer)

During the early years of the depression, Mrs. Jessie B. Gordon, city librarian, became aware of a need to increase recreation opportunities for young people in Iowa City, Iowa. On February 7, 1934, Iowa City's first recreation director, Miss Luella Reckmeyer, was employed. Financial support came from the Women's Club and Community Chest funds. On June 4, 1944, a city ordinance creating a Playground and Recreation Commission was established.

274. ROSS, Bruce H. Stretch Reflex: An electromyographic investigation of the iliocostalis lumborum and the longissimus dorsi. M. A. in Physical Education, 1967. 100 p. (G. M. Asprey)

The data were electromyograph tracings obtained from the right iliocostalis lumborum and the right longissimus dorsi of 11 college men. To obtain the tracings 2 pairs of surface electrodes were placed over the right iliocostalis lumborum and 2 pairs were placed over the right longissimus dorsi in the region of the lumbar spine. None of the 7 trunk-flexion movements tested in this study evoked a phasic stretch-reflex functioning of the iliocostalis lumborum and the longissimus dorsi to prevent excessive flexion of the spine. The complete relaxation of the iliocostalis lumborum and the longissimus dorsi was found to occur when the spine was completely flexed. It appears that there is no phasic stretch-reflex functioning of the iliocostalis lumborus and the longissimus dorsi acting during trunk flexion movements to prevent excessive flexion of the healthy spine.

275. SCHILD, Richard J. The effect of physical activity on ligament strength in albino rats. Ph. D. in Physical Education, 1967. 183 p. (C. M. Tipton)

A machine was developed to measure the amount of force necessary to separate the medial collateral ligament from its osseous attachments and to measure the amount of elongation occurring at the time of separation. Rats (N=91) were randomly placed into one of 4 experimental groups: control, single bout of exercise, trained, and immobilized groups. The findings indicate that training has a positive effect on ligamentous strength as measured in units of separation force. Immobilization did not materially affect the strength of ligaments. Immobilization produced significant differences in total elongation and would suggest that a reduction in physical activity is related to the elongation characteristics of ligaments.

276. SMIDT, Gary L. Relationship of the antero-posterior spinal column deviation to the pelvi-femoral angle. M. A. in Physical Education, 1967. 55 p. (G. M. Asprey)

The data were collected from 52 male college students. Findings suggested that no relationship exists between the amount of thigh extension and the deviation of the thoracic spinal curve and the lumbar spinal curve. Furthermore, it may be concluded that subsequent to anteversion of the pelvis, an additional amount of thigh extension might be obtained by applying 25 pounds of force against the thigh. Since there is a difference between the amount of thigh extension for the two hip joints, bilateral goniometric measurements of the hip joints should be obtained.

277. SOPER, George Eben, Jr. A study of kinesthetic sense in children with cerebral palsy. M. A. in Physical Education, 1967. 46 p. (G. M. Asprey)

The subjects, a group suffering from cerebral palsy and a normal group, were blindfolded when performing tests of kinesthesis. Scores were the degrees of deviation from the desired limb position or grams of deviation from the desired weight. The cerebral palsy subjects deviated more than the normal subjects from the correct response. Significance was obtained for the following tests: arm abduction to 90°, arm flexion to 90°, forearm flexion to 90°, thigh flexion to 60°, and perception of pressure.

278. TOMANEK, Robert J. The effects of exercise and tenectomy on the morphology of a peripheral nerve. Ph. D. in Physical Education, 1967. 164 p. (C. M. Tipton)

Albino rats were assigned to chronic exercise (N=20), acute exercise (N=22), tenectomy (N=24), or control (N=24) groups. Conclusions were that neither a single bout of exercise nor an 8-week training program produce measurable changes in the diameters or number of nerve fibers comprising the medial gastrocnemius nerve. Limiting the function of a muscle by tenectomy is associated with a reduction in the diameter and number of fibers comprising its nerve. Neither of the nerve fiber variables (mean fiber diameter or number of fibers) is significantly related to muscle weight. The 8-week training program employed in this study is effective in increasing the mass of the heart and in retarding gains in body weight.

University of Kansas, Lawrence, Kansas (W. H. Osness)

279. AZIERE, James F. Hypokinesia in physical education. M. S. in Education, 1967. 118 p. (W. H. Osness)

280. BENDER, Dennis P. Cardiorespiratory response to the 600-Yard Run. M. S. in Education, 1967. 68 p. (W. H. Osness)

281. ELSTON, Donald W. A Biography of Forrest C. "Phog" Allen. M. S. in Education, 1967. 73 p. (H. A. Shenk)

282. RIFE, Max L. Basketball in its early years at the University of Kansas 1898-1925. M. S. in Education, 1967. 88 p. (W. J. Mikols)

283. RUSHEN, Ronald J. A comparison of the effects of progressive resistance exercise using the universal gym weight machine and Olympic barbells. M. S. in Education, 1967. 58 p. (W. H. Osness)

284. SMITH, Robert L. A cinematographical analysis of the triple jump. M. S. in Education, 1967. 85 p. (W. H. Osness)

285. STOTTS, James E. Height as related to the success of basketball players. M. S. in Education, 1967. 30 p. (W. J. Mikols)

286. WOLFE, Clayton C. The effects of training for cross-country running upon pre-exercise and postexercise pulse rates. M.S. in Education, 1967. 41 p. (H. A. Shenk)

Kent State University, Kent, Ohio (P. M. Ribisl)

287. COHEN, Janis D. The effects of athletic training on response to hypoxia and hypercapnia. M.A. in Biological Sciences, 1967. 162 p. (L. A. Golding)

Face-in competitive swimmers, distance runners, and unconditioned college men were exposed to hypoxic-acapnic gas mixtures of $FICO_2$ 18%, 17%, 16%, 15%, 14%, and 13%, and to hypercapnic-normic gas mixtures of $FICO_2$ 1%, 2%, and 4% for 10 minutes while sitting quietly. The gas mixtures were obtained by metering oxygen, carbon dioxide, and nitrogen separately into a Douglas bag. Expiration was recorded on a 600-liter Collins gasometer kymograph, and recordings were made of EKG, impedance pneumography, and blood pressure, on the E & M physiograph six, for the ten-minute test. Results indicate that swimming training and distance running affect response to hypoxia and hypercapnia, and that ventilation and heart rate response are more likely to become less sensitive to changes in breathing gas tensions than are blood pressure and respiratory rate.

288. McNUTT, Betty J. A study of the intercollegiate athletic programs for women in the area served by the Midwest Association for Physical Education of College Women. M.A. in Physical Education, 1967. 199 p. (B. Seidel)

Questionnaires were sent to women department heads of midwest colleges. The questionnaire was divided into rules and regulations for competition, travel, scheduling, and miscellaneous. The findings of the study showed that regardless of size most colleges consider the guidelines important and report a high degree of adherence to them. The guidelines concerning rules and regulations for competition, scheduling of events, and medical provisions received the most favorable over-all responses for both importance of practice and present status of practice.

289. PHILLIPS, Mildred B. An investigation of elementary classroom teachers' perceptions of their role in teaching physical education. M.A. in Physical Education, 1967. 111 p. (D. Scott)

A perception inventory consisting of 32 statements was developed and administered to 177 experienced elementary classroom teachers from 13 counties in northeast Ohio. Three classifications of statements were used in the inventory: classification I described the role of physical education programs in general; classification II described the role of the classroom teacher in physical education programs; and classification III described the role of the physical education specialist in elementary physical education programs. Major findings were that classroom teachers, in general, tended to regard elementary physical education as a very important and essential factor in the total school curriculum. An overwhelming majority of the classroom teachers showed favorable perceptions to statements describing the role of physical education.

University of Kentucky, Lexington, Kentucky (J. P. Ross)

290. ROSS, James Pheane. Selected early life experiences and social factors as related to choices of leisure activities. Ph.D. in Education, 1967. 229 p. (H. H. Sorrenson)

Tabulation of the results of 323 questionnaires revealed that of the 13 selected social factors studied, the student's family income and the education of the father of the student were the two strongest influences on the rate of participation by the student in recreational activities. The family's religious preference, mother's age at the birth of the student, and the mother's occupation were next in terms of influence. Of least influence was the college attended and the age of the student during his freshman year.

Los Angeles State College, Los Angeles, California (T. L. Doolittle)

291. COHEN, Harlan S. An illustrated study of selected drills for coaches in power volleyball. M. A. in Physical Education, 1967. 88 p. (D. M. Strehle)

292. DOMINIC, JoAnn C. An investigation of the twelve-minute run-walk test as a predictor of circulo-respiratory fitness of adolescent girls. M. A. in Physical Education, 1967. 49 p. (T. L. Doolittle)

293. PASCHAL, Jim. The effect of a rope jumping program upon cardiovascular efficiency. M. A. in Physical Education, 1967. 38 p. (T. L. Doolittle)

294. PETRY, Kathryn. Evaluation of a volleyball serve test. M. A. in Physical Education, 1967. 61 p. (T. L. Doolittle)

295. SCHENDEL, Carol J. The relationship between attitudes and physical performance of selected high school girls. M. A. in Physical Education, 1967. 50 p. (T. L. Doolittle)

Louisiana State University, Baton Rouge, Louisiana (J. K. Nelson)

296. BATES, Jimmy D. The effects of static and dynamic strength training and position of exercise on the acquisition of strength, speed of movement, reaction time and endurance. Ed. D. in Physical Education, 1967. 138 p. (J. K. Nelson)

College males (N=108) trained 3 days a week for 5 weeks on strength exercises. Three groups trained isometrically at 3 positions within the range of motion of the supine press. Three groups trained isotonically at 3 positions within the range of motion. All 6 groups made significant gains in all qualities tested. No differences among the groups were found which could be attributed to the type of exercise performed, or position of exercise; nor was there any interaction between type of training and position of exercise in any of the qualities tested.

297. BROUSSARD, Martin J. Evaluation of citrus bioflavonoid as an aid in prevention and treatment of athletic injuries. Ed. D. in Physical Education, 1967. 66 p. (F. A. Drury)

Members of the varsity football team (N=48) at Louisiana State University were assigned at random to 2 groups on a matched player basis. Throughout the pre-season practices and during the regular season, each player received 3 gelatin capsules daily. The experimental group was given 300 mg. of lemon-orange flavonate glycoside in each capsule, while the control group received a placebo. The extent of the severity of the injuries was approximately the same in both groups. However, the results of the analysis of injuries indicated that citrus bioflavonoid appeared to be of some benefit in the reduction of the incidence and severity of, and recovery from, football injuries.

298. JOHNSON, James H. A comparison of the effectiveness of isometric exercises and exercises performed on the kinometric contractor in developing strength. M. S. in Physical Education, 1967. 34 p. (F. A. Drury)

Male college students (N=45) were tested before and after a 9-week training period for maximum performance with weights in the military press. One group exercised on the kinometric contractor, a machine that enables the subject to exert maximum effort against a bar which moves at a predetermined, equiproportional rate of motion in a fixed plane throughout the range of motion. Another group trained isometrically. Both groups met 3 times per week. It was found that both experimental groups improved significantly, whereas the control group did not. There was no difference between the experimental groups.

299. KENDRICK, Larry L. Performance in selected gross motor skills before and after fatiguing exercise. Ed. D. in Physical Education, 1967. 79 p. (J. K. Nelson)

Each of 5 groups of college men was tested on one of the following gross motor skills: basketball free throws, basketball jump shots, repeated vertical jumps, total body response accuracy, and 20-yard sprints. Subjects were then given a submaximal work bout consisting of bench stepping at 33 steps per minute until the established criteria for fatigue were reached. It was found that general body fatigue impaired performances which called for strength, endurance and rapidity of response. Accuracy performance using a light object, as in basketball shooting, was not appreciably affected by general body fatigue. Five minutes of rest was not sufficient to recover from fatigue in tasks involving repeated jumps and repeated short sprints.

300. KIGHT, Carl R. The effects of experimentally induced variations in body weight upon power. Ed. D. in Physical Education, 1967. 71 p. (F. A. Drury)

Mature male subjects (N=36) were tested on a modified vertical jump at their normal body weight, with lead weights equal to 1, 2, and 3 percent of body weight. A leg strength measure was taken prior to the power testing. Performances of explosive power were progressively improved by reducing weight by loss of water content, and progressively impaired by adding dead weight to the body. However, the jumping performance did level off somewhat with added weight. No relationship was found between leg strength and power for the subjects in this study.

301. KRAMER, George F. Muscle action potential as related to effort. Ph. D. in Physical Education, 1967. 85 p. (F. A. Drury)

Electromyograms were taken of the right medial biceps brachii on 103 male university students. Direct and integrated action potential measures were recorded at maximum tension, one-half maximum, and at one-quarter effort. Each of the exertions were held for 5 seconds. Analysis of the data revealed that a change in muscular effort did not produce a proportional change in muscle action potential. Furthermore, neither action potential nor effort can be predicted from the other.

302. MCNAIR, Daniel P. Effects of different exercise programs on the development of cardiovascular fitness, strength and muscular endurance. Ph. D. in Physical Education, 1967. 87 p. (J. K. Nelson)

All subjects were enrolled in a physical education program which covered soccer, touch football, basketball, and wrestling. In addition to the physical education activity, one group was given a 5-minute interval run each exercise day; one group performed a stepping exercise of varied cadences for 2-1/2 minutes; and a third group practiced 4 isometric exercises. The fourth group engaged only in the physical education program. The subjects trained 3 days a week for 6 weeks. All groups made highly significant gains in cardiovascular fitness, strength, and muscular endurance, but no differences were found among the groups.

303. YOUNG, Jule Ann. Activity skills required and the use of competency examinations in the professional preparation of women physical education majors in selected colleges and universities. M.S. in Physical Education, 1967. 73 p. (H. E. Fant)

The responses from 70 colleges and universities located in the Southern District of the AAHPER indicated that a large variety of basic activity skills was being required of women physical education majors. Very few required intermediate and advanced skills. No definite pattern existed as to the number of credits given, or whether the skills were taught in methods classes and/or the basic program. Although only 21 percent of the schools gave competency examinations, 61 percent favored the idea.

University of Massachusetts, Amherst, Massachusetts (H. K. Campney)

304. ARIEL, Gideon. The effect of the knee joint angle on the Harvard step test. M.S. in Physical Education, 1967. 62 p. (H. K. Campney)

The Harvard step test (HST) was administered in 4 different knee joint angles to 33 college subjects. Analysis of variance and covariance measures find yielded significant F ratios at the .01 level of confidence. Variations in the angle of the knee joint when performing the HST cause significant differences in the fitness index scores.

305. CAHILL, Peter J. The effects of partial cool bath immersion on oxygen consumption, heart rate and core temperature during recovery from submaximal effort. M.S. in Physical Education, 1967. 37 p. (B. Ricci)

The purpose of this study was to compare recovery from submaximal exercise while sitting in a cool water bath (26.7°C) to recovery while seated in a room in which ambient temperatures ranged from 23.3 to 24.4°C. Three variables - oxygen consumption, heart rate, and rectal temperature - were examined. Subjects (N=4) performed a constant predetermined bout of exercise on a motor driven treadmill. Oxygen consumption values were determined by the open circuit method of indirect calorimetry and carbon dioxide and oxygen samples were analyzed. The heart rate was obtained by a Waters C 225 cardiotachometer and recorded on a Honeywell visicorder oscillograph. For 9 minutes of recovery the cool bath did not significantly affect recovery from the submaximal exercise when mean oxygen consumption, mean heart rate and the difference between the initial and final rectal temperature were examined.

306. DINGLE, Ronald L. A comparison of the running mechanics of experienced female runners. M.S. in Physical Education, 1967. 73 p. (H. K. Campney)

The data was collected by filming 2 experienced and 2 inexperienced female runners and timing them in the 50-yard dash. The film was analyzed both qualitatively and quantitatively in a Recordac microfilm reader and a Keystone variable speed 16 mm motion picture projector. The 2 experienced subjects differed markedly from the 2 inexperienced subjects in the mechanics of running although there were a few similar characteristics. The two inexperienced subjects showed no exceptional differences in their running mechanics. In the same manner, the two experienced subjects showed no extreme differences in their running mechanics.

307. DURENTINI, Carol Louise. The relationship of a purported measure of kinesthesis to the learning of a simple motor skill, the basketball free throw, projected with and without vision. M. S. in Physical Education, 1967. 65 p. (V. Hubbard)
Twenty-eight female university volunteers were divided into 2 equal groups. An initial, retest, and final basketball free-throw score, and a Roloff four-item kinesthesis battery score were obtained for each individual. One group of subjects trained blindfolded in free throw shooting while the other group continued to train in the conventional manner. An analysis of covariance applied to data revealed no significant improvement between groups as a result of training with and without visual cues; and furthermore, that there was no significant improvement in the kinesthetic sense (as measured by the Roloff battery), as a result of the two methods of training. The Roloff battery was found not to be a predictor of kinesthetic functioning with respect to free throw shooting.

308. ELSNER, Dorte L. The effect of intermittent and continuous work on oxygen debt. M. S. in Physical Education, 1967. 47 p. (B. Ricci)
Oxygen debt values were obtained on 4 subjects from 7 test periods, each of them consisting of one intermittent and one continuous work performance on a treadmill. The results denoted that the experiment was too short to cause a training effect, as reflected in the inconsistent pattern of incurring an oxygen debt. There was a statistically significant difference between subjects when considering the total oxygen debts regardless of the type of treatment. It was concluded that individual reaction accounted for the difference in contracting an oxygen debt as caused by intermittent and continuous running exercise.

309. GOODING, Peter J. The effects of two strictly controlled motivational techniques on the grip strength of male subjects. M. S. in Physical Education, 1967. 65 p. (E. V. Hubbard)
The experimentor investigated the effects of the preload deception and maximum-plus motivational techniques on grip strength. The preload deception group subjects were striving to reach incentive targets which remained at their pretreatment means. Unknown to the subjects, the spring ring dynamometer was preloaded before each trial, the poundage increasing by 5-pound units if the subject reached the incentive target at the previous trial. The maximum-plus group subjects were striving to reach incentive targets that were initially 5 pounds beyond their pretreatment means and then 5 pounds beyond their highest target scores. The treatments did not significantly differ, although both groups increased significantly in grip strength while a control group did not.

310. GORTON, Linda G. The relationship between selected factors of motor ability, personality needs, and skiing educability. M. S. in Physical Education, 1967. 65 p. (E. V. Hubbard)
Qualified judges evaluated the level of skiing proficiency of 30 female non-skiers after 14 periods of instruction and practice by observing and rating a film of the subjects skiing through a single pole slalom course, executing their most advanced level of skiing. Motor ability items yielded small positive correlations with skiing educability nonsignificant at the 5 percent level. The multiple correlation coefficient of the combined motor ability items was .40. The multiple correlation coefficient using all 15 personality variables was .91.

311. HACHE, Roland E. An achievement test in ice hockey. M. S. in Physical Education, 1967. 53 p. (C. L. Vendien)
Selected test items were forward skating, backward skating, cross-overs, ice hockey motor ability, and the reciprocal of the ponderal index.

Varsity ice hockey players (N=23), were tested on these items and judges used a rating scale to grade the subjects on the selected skills. A multiple correlation of .60 was observed and 2 test items, cross-overs and ice hockey motor ability, were shown to have a significant contribution to R^2. The coefficients of objectivity ranged from .63 to .99. The obtained regression equation to evaluate basic ice hockey skills may be observed as follows: Basic ice hockey skills = 2.01 (ice hockey motor ability score) + 2.95 (cross-overs score) + 8.99 (forward skating score) + 2.76 (reciprocal of the ponderal index score) + 1.13 (backward skating score) - 183.56.

312. HOFFMAN, Carl. *The effects of wearing a sweat suit on heart rate, core temperature, and body fluid loss during treadmill running.* M.S. in Physical Education, 1967. 62 p. (C. L. Vendien)
Each of 4 male subjects ran 12 times on a motor-driven treadmill, 6 times in a bareback uniform and 6 times in an athletic sweat suit. No significant differences were noted for heart rate for minutes 1, 5, 10, 15, 20, and no significant differences were noted for core temperature for minutes 1, 5, 15, 20 of exercise. Body fluid loss was significantly increased with the sweat suit. Heart rates were not significantly different over the time of the study, but core temperature and body fluid loss were significantly different over the time of the study.

313. HOPKINS, John S. *The relationship between grip strength and wrestling success.* M.S. in Physical Education, 1967. 48 p. (E. V. Hubbard)
Sixty-seven contestants in alternate weight classes (123, 137, 152, 167 and 191 pounds) in the New England Intercollegiate Wrestling Association Tournament served as subjects. Three measures of grip strength were recorded: at weight-in, at weigh-in per pound of body weight, and at on-deck. Tournament rank, as determined by a system devised by the author, failed to correlate significantly at the .05 level of confidence with the 3 different grip strength orders.

314. LANGE, Janice L. *The prediction of oxygen consumption at submaximal levels of exercise.* M.S. in Physical Education, 1967. 42 p. (B. Ricci)
Oxygen consumption and heart rate were predicted for the 4th minute of exercise for trained individuals (N=4) from oxygen consumption and heart rate at lower levels (rest and 1st, 2nd, and 3rd minutes of exercises). Oxygen consumption was measured by the open circuit system. Heart rate was measured with chest electrodes and recorded on an oscillograph. The mean oxygen consumption was predicted within 1 ml/kg/min of the actual oxygen consumption of 28.91 ml/kg/min. The predicted mean heart rate was 141.99 or 12.93 less than the actual heart rate when the data for exercise only was used in the prediction. Prediction from 3 levels of exercise was more accurate than prediction which included rest values for both parameters. Prediction of oxygen consumption was more accurate than prediction of heart rate.

315. REED, Beverly M. *A comparison of two methods of judging synchronized swimming stunts.* M.S. in Physical Education, 1967. 85 p. (M. A. Coffey)
The judging methods compared were the Durrant analytical method and the Amateur Athletic Union method. The test stunts judged were the: somersault, front pike; dolphin, foot first, full twist; flamingo, half-twist; cataline; and the elevator. Five female instructors or graduate assistants of the School of Physical Education who had not judged, instructed, or sponsored synchronized swimming groups served as judges while 10 subjects were drawn from the Synchronized Swimming Club at

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the University of Massachusetts. Based upon the totals of all judgments between methods, a correlation coefficient of .92 resulted.

316. RICCOBONO, Linda J. The professional life of Mildred S. Howard, Director of the Department of Physical Education at Mount Holyoke College, 1930-63. M.S. in Physical Education, 1967. 73 p. (M. A. Coffey)

Books, periodicals, newspapers, scrapbooks, reports and personal interviews with Mildred S. Howard provided information concerning the development of physical education at Mount Holyoke College from 1837-1930, her directorship of the Department of Physical Education from 1930-63, and her professional activities in various associations. During her term, she initiated at Mount Holyoke College and supported in her professional organizations the trends she believed would improve her profession. The recording of the events of her directorship and professional activities traces the development of her beliefs and aims and reflects the movement and trends in physical education in women's colleges on the Eastern seaboard.

317. VENNELL, Jeffrey. A comparison of the hop-step and straddle soccer throw-ins at two selected distances. M.S. in Physical Education, 1967. 34 p. (E. V. Hubbard)

Order of instruction on the 2 throw-ins was alternated between 2 classes. Two targets, circles 4 feet in diameter, were used. One was at a distance of 45 feet, and the other was 22-1/2 feet. There was no significant difference in accuracy between the two methods at either distance. However the hop-step method produced significantly longer distance throws than the straddle method.

318. VIZARD, Thomas C. The effects of increased emotional pressure on foul-shooting performance in college and high school basketball tournaments. M.S. in Physical Education, 1967. 43 p. (E. V. Hubbard)

Success in the first shot of the one-and-one basketball free throw was compared to success in the first shot of the two-shot free throw to determine whether a significant difference existed. Data consisted of all first shots of the one-and-one and 2-shot fouls in 9 college and 7 high school championship games in 1965. The two major comparisons of one-and-one completions versus two-shot completions and high school versus college success were not significant at the .05 level of confidence, nor did point difference in score or half of game in themselves distinguish first shot success. Comparisons of combinations involving differences in score and half of game produced some significant differences. However, the fragmentation of data and the added complexity makes speculation about possible meanings difficult.

Memphis State University, Memphis, Tennessee (W. L. Babin)

319. HAMRICK, Michael H. A comparative analysis of the three-day-a-week and the two-day-a-week schedules of training. M.Ed. in Physical Education, 1967. 101 p. (W. L. Babin)

Two groups of male college freshmen (N=122) were formed and participated in an 8-week circuit-training program which consisted of 3 hours of conditioning per week. Using an analysis of variance it was found that the Monday-Wednesday-Friday group was significantly superior to the Tuesday-Thursday group in developing cardiovascular endurance. However, the data revealed no significant differences in improvement by either group for any other component of fitness. The F ratios obtained for differences in pre- and post-test means revealed significant improvements for both groups in recovery pulse, agility, flexibility, arm strength, leg strength, and abdominal strength. The Monday-Wednesday-Friday group was also successful in improving terminal pulse.

University of Minnesota, Minneapolis, Minnesota (M. U. Wilson)

320. BADERTSCHER, Kenneth R. Basic personality types and senior citizen programing. M.A. in Physical Education, 1966. 120 p. (R. J. Donnelly)

321. BIRD, Patrick J. An investigation of the effects of an individually geared exercise program on the physical fitness and cardiorespiratory efficiency of adult men. Ph.D. in Physical Education, 1967. 170 p. (J. F. Alexander)

A detailed record of the extent, type and frequency of participation in all physical activities was kept on adult men (mean age = 40.7 years) in a 23-week training period. Activities most selected were paddleball, running, the 5BX Program, swimming, squash, basketball and handball. The subjects averaged 33.1 minutes of activity per session and 1.72 sessions per week. Overall effects were an improvement in treadmill performance time 21 percent ($p > .01$), efficiency 16 percent ($p > .01$), and peak oxygen intake 5 percent ($p > .05$). Significant correlations were found between total minutes of activity and performance time, efficiency, but not peak oxygen consumption.

322. GILMORE, Gerald R. The effect of physical training on human motor performance under an audio stress. M.A. in Physical Education, 1967. 65 p. (R. E. McAdam)

323. MACLEOD, Robert N. Persistence in teaching among male special area graduates in education. Ph.D. in Physical Education, 1965. 133 p. (R. J. Donnelly)

The purposes were to analyze relationships between biographical, psychometric, and academic variables and persistence in teaching of male graduates of the College of Education (University of Minnesota) in the special areas of art, business, music, industrial, and physical education, and to examine vocational movement and occupational characteristics. No significant differences were found between persists and nonpersists. Music, art, business, and industrial education graduates were higher on high school rank and grade point averages than physical education graduates.

324. METZ, Kenneth F. The relationship between maximum aerobic work capacity and physical fitness in twelve to fifteen year-old boys. Ph.D. in Physical Education, 1967. 167 p. (J. F. Alexander)

Subjects were administered 2 different treadmill tests (intermittent work and continuous step-up work) designed to elicit maximal work capacity. For 12 and 13 year olds all items of the AAHPER youth fitness test, except sit-ups, were significant related to maximal oxygen intake, and for 14 and 15 year olds all items but sit-ups, softball throw and 600-yard run-walk. Pull-ups, dips, and right grip strength from the McCloy strength test, the Harvard step test score, and peak oxygen intake and running time to exhaustion from the continuous step-up treadmill test were significantly related to maximal work capacity.

325. MULEY, Nicolas A. The commuting student and his participation in a college union program at the University of Minnesota, St. Paul Campus. M.A. in Recreation, 1967. 93 p. (F. M. Chapman)

Questionnaires were sent to registered undergraduate commuting students. The findings were: the commuting student was single, between 19 and 20 years of age, lived at home (over 10 miles from the campus), and commuted by automobile; 70 percent of the men and 63 percent of the women worked part time while attending school; students spent 9 to 19 hours weekly in extra curricular activities (mostly off campus), visited the St. Paul Campus Student Center on a regular basis, and were mostly attracted by dance, fine arts, and crafts.

326. ROEDER, Merwin G. The effect of selected stimuli on intensity of isometric effort. Ph. D. in Physical Education, 1967. 112 p. (R. J. Donnelly)
A T5-6007 medical tensiometer was used to measure strength of the forearm flexor muscles. Male college students (N=81) were tested under conditions of nonstimulus; verbal stimulus; investigator repeating a patterned stimulus during maximum effort; and visual stimulus (viewing the tensiometer dial during maximum effort). Significant differences existed between stimulated and nonstimulated isometric responses, and between visual and verbal stimuli conditions. Following stimuli, weaker subjects responded to a greater degree than did stronger subjects. Visual stimuli had a greater effect on the stronger subjects.

University of Missouri, Columbia, Missouri (B. B. Godfrey)

327. CAIN, Gary K. A comparison of certain administrative practices and conditions with the sportsmanship ratings for interscholastic basketball contests in selected Missouri schools. Ed. D. in Educational Administration, 1967. 148 p. (F. Heagerty)
Information on certain administrative practices and conditions was obtained through structured interviews with administrators in charge of basketball programs in 20 senior high schools in Missouri, selected on basis of sportsmanship ratings in basketball contests and from 60 basketball officials selected on basis of officiating experience in these schools. Descriptive analysis indicated: the most important factor causing a school to have a low sportsmanship rating is a coach with undesirable bench conduct; schools with superior equipment and facilities are more likely to receive high sportsmanship ratings; higher sportsmanship ratings go to schools providing numerous interschool sports rather than few, schools whose teams do not necessarily have high winning percentages, and schools providing opportunity for cheerleaders to attend leadership clinics.

328. COOPER, Judith F. The relative effectiveness of two methods of developing endurance in college women. M. A. in Physical Education, 1965. 85 p. (B. B. Godfrey)
Freshman and sophomore college women (N=115) in two physical education classes followed special training programs: one interval training, the other jogging for a 6-week period. Circulo-respiratory endurance, measured by the Hodgins-Skubic modification of the Harvard step test, increased in both groups, significantly for the interval training group. AAHPER 600-yard run-walk times decreased significantly for the jogging group. Both groups recorded improved C-R and 600-yard run-walk scores following training.

329. GAMBARO, Joann Marie. The effectiveness of instructional television in selected units of a movement fundamentals course at the University of Missouri. M. A. in Physical Education, 1966. 85 p. (B. B. Godfrey)
College women (N=73) regularly enrolled in 2 8-week movement

fundamentals classes received part of their instruction, 4 lessons, in one class by instructional television, the other as usual, or face-to-face, from the same instructor. The face-to-face group run, jump, and throw scores increased, jumping significantly, while the television group run and throw scores increased, running significantly, and jump scores decreased. The difference in gains between the two groups was not significant. Tape preparation in a studio rather than in a gymnasium facing a class was cited as a factor in limiting tape effectiveness.

330. HOGUE, Raymond E. An electromyographic study of upper extremity muscular activity at different cadences and grades during normal gait. Ph. D. in Education, 1967. 121 p. (B. B. Godfrey)
The electrical activity of 60 upper extremity muscles (muscle sample N=12) of 15 college students, 12 males and 3 females, was recorded using the physiograph six, telemetry unit, and imbedded copper wire electrodes, at treadmill cadences of 70, 95, and 120 steps/min. on grades of 0° and 15°. Analysis of recordings, with chief consideration to integrated potentials, indicated the arms act as pendulums during gait but muscle action contributes to momentum in the requisite combined action of gravity and momentum for arm swing, and the posterior deltoid acts more strongly than other upper extremity muscles during walking with the middle deltoid and the teres major the only other significantly contributing muscles. Upper extremity muscle action increases at faster walks and steeper inclines, and more muscle action is required to slow down the forward swinging arm and extend it than to flex it. Lower extremity muscles act more strongly in gait than upper ones but scapular and shoulder muscles do work with the contralateral leg in absorbing shock at heel strike, controlling excessive frontal plane trunk movement at mid-stance, in imparting momentum to trunk and legs at push-off, and decelerating the arm during leg deceleration.

331. KETH, Earl K. An experimental study of the relative merits of initial training clubs used for group golf instruction. Ed. D. in Educational Administration, 1967. 83 p. (F. Heagerty)
College men (N=60) and women (N=60) were randomly assigned to 4 coeducational classes and received beginning golf instruction for a 9-week period with only 1 assigned initial training club from 4 club groupings: woods, long irons, middle irons, short irons. Using specially designed tests to measure each club for distance and accuracy for men and for women and weighted values derived from a pilot study, a one-way analysis of variance yielded no significant difference in mean scores for the various subjects and training clubs in learning the full golf swing.

332. SCOTT, Jimmy Dan. The effect of isometric and elastic cord exercises on strength and speed of swimming. Ed. D. in Educational Administration, 1967. 86 p. (B. B. Godfrey)
Male college students in 2 advanced swimmer and one life-saving class (N=51) were randomly assigned to 3 groups. The 2 experimental groups undertook a regimen of functional isometric and elastic cord exercises, coupled with regular instruction. Pretest analysis showed no difference in strength and swimming speed among groups. Weekly testing in the first 6 weeks, using analysis of variance and Tukey's contrast for multiple comparison, yielded evidence that all groups gained significantly in strength; the exercise groups by the end of the second week, the control by the fourth, and that the exercise groups gained in swimming speed over the control, with no significant difference between strength gained by functional isometric and by elastic cord exercises. Strength gained was maintained as well by elastic cord exercises performed every 2 weeks as once a week.

New York University, New York City (R. A. Weiss)

333. ALLEN, Helen M. A study of the effectiveness of teaching folk dancing by television to third and fourth grade children. Ed. D., 1967. 185 p. (R. C. Brown, Jr.)

This study compared the achievement and attitudes of 200 third and fourth grade children taught folk dancing utilizing 2 different instructors in 2 different situations, one group via closed-circuit television and the second group in a conventional gymnasium situation. The author constructed and pretested instruments to measure achievement and attitude because of the lack of availability of tests for measuring folk dance ability and the unsuitability of physical education attitude scales currently available. The unit of study consisted of a selection of 8 folk dances taught over a period of 8 weeks. Based on an analysis of variance, it was concluded that there was no significant difference in achievement and attitude toward folk dancing for method or teacher.

334. CRANFORD, Charles B. A guide for implementing the recreation section of the existing comprehensive plan for Philadelphia, Pennsylvania. Ed. D., 1967. 286 p. (M. A. Gabrielsen)

City and federal government agencies were major sources for selected data. Access to documents, files and graphics was provided as well as conference time of knowledgeable officials. Criteria based upon the goals of recreation and this nation's democratic society as expressed in the literature were used in selection of the material upon which the guide was based. The guide contains guidelines for the Department of Recreation in administration, areas and facilities, personnel, program planning and development, budget and finance, and principles for planning public recreation.

335. ECK, William L. A study of health teaching in the public secondary schools of Nassau County, New York. Ed. D., 1967 298 p. (M. R. Fields)

The health teaching practices and administrative practices in support of health instruction programs were collected from 20 Nassau County secondary schools by questionnaire and interview. Basic principles essential to good health teaching and administration were identified by the investigator and were used to rate the health practices. It was concluded that most of the programs of health instruction in these schools needed to be upgraded and that administrative support was the single factor of greatest importance to such programs. There was strong evidence that the traditional administrative relationship of health education with physical education has done nothing to enhance health instruction programs. The evidence suggested the need for the establishment of a separate administrative framework involving certified and experienced teachers, supervisors and administrators of health education.

336. HAWKINS, Donald E. The formulation and validation of industrial recreation principles in the United States. Ed. D., 1967. 453 p. (E. L. Ball)

Basic concepts in recreation and industrial employee services were analyzed in order to develop a conceptual basis for theoretical industrial recreation principles. These theoretical principles were modified by practical considerations to validate 42 workable principles of industrial recreation. The principles were tested for their practical applicability through a proportionate stratified random sample of member companies of the National Industrial Recreation Association. Survey findings indicated mainly consistent or neutral relationships between practices and the validated principles. Recommendations for improvement of weak practices were formulated and validated.

337. JESSUP, Harvey M. Jay Bryan Nash: His contributions and influence in the fields of physical, health, recreation, camping and outdoor education. Ed. D., 1967. 428 p. (M. A. Gabrielsen)
Sources of data included the literature, testimony, and primary sources. Nash's accomplishments through teaching and administration in California and New York University, contributions to professional literature, and leadership and influence in professional organizations and activities have caused him to become one of the most widely recognized leaders of his generation in the profession. Documentary evidence and professional citations and recognition lend support to the conclusion that Dr. Nash's work was a major factor in the shaping and continued development of the profession.

338. KUSINITZ, Ivan. A study of the effects of progressive weight training upon running speed and circulorespiratory endurance. Ph. D., 1967. (R. A. Weiss)
The dependent variables of running speed and endurance were measured before and after a 12-week training period as follows: speed: 50-yard dash; endurance: McCloy endurance quotient and the 300-yard run; and muscular strength: the McCloy strength index revision. The experimental group practiced progressive weight training and running while the control group practiced only running. The data were subjected to analysis of covariance, two-way factorial analysis of variance and Pearson's product-moment correlation. The conclusions were: progressive weight training and running are more effective than running only in developing running speed and endurance as measured by the 300-yard run; and individuals who begin training with initial low strength do not make greater gains in the dependent variables than those with initial high strength.

339. LEWIS, Frederick B., Jr. A comparison of three methods of conditioning upon strength, speed, endurance and selected basketball skills. Ed. D., 101 p. (M. A. Gabrielsen)
Male college students (N=90) participated in a 12-week training and conditioning program. The subjects were randomly placed in one of 3 treatment groups and were identified as the traditional group, usually characterized by conventional exercise; the resistive-exercise group, utilizing a combined isometric-isotonic technique of exercise using the Exer-Genie exerciser; and the control group in which no formal conditioning took place. The post-test findings showed a significant difference on the scores made by the resistive exercise group as compared with the other two groups on all 4 criterion variables indicating that the combined isometric-isotonic method of conditioning was effective.

340. SCHIMA, Marilyn Eleanor. The integration of health teaching in the elementary school curriculum of the Great Neck Public Schools. A Guide for Teachers. Ed. D., 1967. 214 p. (E. L. Ball)
Part I of this study included three phases: the development of health generalizations, the development of guidelines for integration, and the determination of places where health could be integrated into curriculum areas in accordance with the guidelines for integration. Part II presented the findings from Part I in the form of 2 charts. Chart A illustrated the points of interrelatedness between health and the other subject areas. Chart B provided the classroom teacher with experiences which may be used in developing specific health generalizations at the various grade levels.

341. YINGLING, Harriet E. The effect of teaching of concepts upon attitudes and general motor performance of ninth grade girls in physical education. Ed. D., 1967. 96 p. (R. A. Weiss)
Ninth grade girls (198) were randomly assigned to experimental and

control groups. Kneer's adapted form of Wear's attitude inventory and Scott's motor ability test were administered to both groups as pre-tests and post-tests. During a 32-week period the experimental group was taught concepts pertaining to physical education objectives for 10 minutes of each class period in addition to the regular activities. Based on analyses of variance and covariance, it was concluded that the teaching of concepts had no significant effect upon the attitudes of the students toward physical education nor did it have any effect upon general motor performance. It was also determined that the effect of concept teaching does not vary with level of intelligence.

North Carolina College, Durham, North Carolina (R. E. Townes)

342. BROWER, Walter L. A comparative study of the achievement of men and women in elementary swimming. M.S. in Physical Education, 1967. 46 p. (R. E. Townes)
Two samples of 15 men and 15 women beginning swimmers were given 10 lessons covered in the American Red Cross Elementary Swimming Course. The significance between the difference of the achievement of these two samples was determined by use of the chi-square statistic. Four items: back float; finning; back glide; and combined strokes on back, revealed a significant difference in achievement favoring the women's sample.

343. GATLING, Alberta Webb. A functional approach to physical education service courses for college women based upon their needs. M.S. in Physical Education, 1967. 65 p. (L. T. Walker)
Final acceptance of the basic needs of college women was made on the basis of two-thirds agreement of specialists. Basic needs of all people may be placed in the following categories: physical needs, intellectual needs, emotional needs, and social needs. The broad general need categories were subdivided into specific needs. It was found that the well-rounded program for college women should provide experiences in aquatics, body mechanics, individual and dual sports, rhythmic activities, sports appreciation, gymnastics, and team sports.

344. GREEN, Harold Bruce. The personal distance between high school athletes and athletes of national prominence. M.S. in Physical Education, 1967. 52 p. (R. E. Townes)
Cowell's personal distance ballot was administered to 2 samples of 75 and 105 high school athletes. The ballot was composed of 15 white and 15 nonwhite athletes of national prominence in the areas of baseball, basketball, and football. It was found that the high school athletes in North Carolina showed greater acceptance of athletes of national prominence, as a group, and of the nonwhite athletes than did high school athletes in Maryland. The index of acceptance was more positive in baseball, and more negative in basketball.

345. HEARTLEY, Harvey D. A survey of marking systems in physical education in 4-A high schools in North Carolina. M.S. in Physical Education, 1967. 56 p. (L. T. Walker)
The Sinning marking instrument was sent to 52 high schools in North Carolina. It was found that the letter grades A, B, C, D, and E or F were used by the majority of these high schools. The factors ranking high in determining the final marks were written knowledge of fundamental rules and skills, attendance, instructor's judgment, improvement in fundamental physical abilities, and attitude. Factors ranking low in determining the final grade were physical skills, health, scores on standardized tests, administrative requirements, scores on teacher-

prepared skill tests, and citizenship. There was some disagreement between instructors and administrators in regard to awarding physical education marks the same value as the other courses in the curriculum.

University of North Carolina, Greensboro, North Carolina
(G. M. Hennis)

346. CHILDREY, Anita M. The relationship of hand-eye coordination as measured by the pursuit rotor and selected motor skills at various age levels. M.S. in Physical Education, 1967. 52 p. (G. M. Hennis)

Four groups of girls were formed: 15 third graders, 15 sixth graders, 15 ninth graders, and 15 college sophomores. Four tasks of hand-eye coordination were given: the pursuit rotor and 3 hand-eye coordination tasks devised by the researcher. There was no significant relationships between any of the tasks for the total group or within the given grade groups. Performance differed significantly only on the pursuit rotor tasks between grades 3 and 9, and 3 and college level.

347. FOG, May Marie C. A comparison of two methods of teaching low intermediate swimming. M. Ed., 1967. 87 p. (R. McGee)

One class of low intermediate swimming ability was taught the orthodox method. The experimental class was taught the orthodox method plus a parallel exercise program incorporated into the same amount of time. During the fifteenth week of the course, 2 tests were administered. One test was for form on the five strokes (American crawl, back crawl, side stroke, elementary back stroke, and breast stroke) and on 2 stunts, the surface dive and back somersault. The DGWS rating scale for form was used by four judges. The other test was Fox's swimming power test which was used for the same 5 strokes. There were no significant differences between classes on the 7 form items. The control class was significantly better on the power performance of the American crawl and back crawl.

348. FORTUNE, Marian June. A study to determine the feasibility of eliminating the standing broad jump from the USDESEA physical fitness test battery. M. Ed., 1967. 60 p. (F. Pleasants)

Data was obtained on 182 girls, aged 12 through 16, in a Dependent Education School European Area in Karlsruhe, Germany. The correlations obtained from the raw scores on the standing broad jump and the Figure-8 run did not indicate a high degree of relationship between these items. Multiple correlations, eliminating the standing broad jump as a test item and using a T-Score average of the scores of the 4-item USDESEA battery as criterion, indicated the validity of the battery was not affected appreciably by eliminating the standing broad jump as a test item.

349. HILDRETH, Kathleen. The effects of two isometric exercise programs, cardiovascular efficiency and selected anthropometric girth measurements. M.S. in Physical Education, 1967. 135 p. (F. Pleasants)

Two groups of college women exercised daily for 5 weeks: Experimental I that used a 6-second contraction, and Experimental II that used a 12-second contraction. A control group did not exercise. Girth measurements were taken and the Skubic-Hodgkins cardiovascular efficiency test for college women was administered at the beginning and end of the experiment. Results of the analysis of variance and t tests indicated that isometric exercise, using either a 6-second or a 12-second contraction, effectively reduced girth in the selected areas of upper arm, waist, hips, thigh, and calf. Isometric exercise proved effective in increasing cardiovascular efficiency.

350. HODGES, Carolyn V. Construction of an objective knowledge test and skill tests in lacrosse for college women. M.S. in Physical Education, 1967. 123 p. (G. Hennis)

A 40-item, multiple-choice knowledge test and 3 skill tests were devised to measure achievement in knowledge and selected skills in lacrosse of college women enrolled in beginning lacrosse classes. In addition, several batteries of tests were analyzed in an attempt to produce an effective measure of lacrosse playing ability. The revised lacross knowledge test possessed items of high indices of discrimination and adequate degrees of difficulty. The reliability coefficient of the revised lacrosse knowledge test was .68. A battery of skill tests consisting of the wall volley test and the pick-up, dodge, turn, run test had a multiple correlation coefficient of .50 when the scores of the first administration were used.

351. PLUNKETT, Carol S. The effect of the physiological components of competition on reaction time in tennis. M.S. in Physical Education, 1967. 58 p. (C. Ulrich)

The discriminatory-reaction and movement time of the tennis forehand and backhand backswings of 21 women students enrolled in an intermediate tennis class was measured by an electrical apparatus. Four experimental testing conditions involved were individual competition, team competition, self-competition, and spectator observation. The analyses of data indicated a significant difference between the mean base score and the experimental conditions of individual, team, and self-competition, and between individual competition and self-competition, team competition and spectator observation, and self-competition and spectator observation.

352. PRESKITT, Donna C. Strength increase as a factor in the performance of a gymnastic skill. M.S. in Physical Education, 1967. 67 p. (G. Hennis)

The subjects were college students who were unable to perform the skin-the-cat skill. They were equated, with each being assigned to follow 1 of 2 devised exercise programs. The results indicated that strength increase was a factor in the performance of the skill, but not the determining factor; that one exercise program (prescribed) was not superior to the other (apparatus exercise) in terms of effecting an increase in strength; that the apparatus exercise program was more efficient in terms of time spent in practice by subjects who were successful in performance of the skill; and that the apparatus exercise program appeared to be the more effective program in terms of the proportion of successful subjects within that program as compared to the prescribed exercise program.

353. RICHARDSON, Dorothy Anne. A study of the effect of different approaches to gymnastics on movement concept. M.S. in Physical Education, 1967. 110 p. (C. Ulrich)

The purpose of this study was to investigate the effect of a movement education approach to gymnastics as compared to a traditional approach, on the movement concept of college women. Two classes in beginning gymnastics were given the Doudlah Q-sort test of movement concept prior to and at the conclusion of their 11-week course. Results showed that both classes demonstrated significant change in the self and ideal-self components of movement concept, but that only within the movement education class was there a significant narrowing of the discrepancy between these components.

354. RODRIGUEZ, Gloria Jean. A comparison of the effects of mental and physical practice upon abdominal strength in high school girls. M.S. in Physical Education, 1967. 72 p. (C. Ulrich)

The purpose of this study was to determine the relative effects of physical practice, mental practice, and a combination of mental and physical practice on abdominal strength as measured by the cable tensiometer in 56 female high school subjects. Results indicated that 17 practice sessions of mental practice did not change abdominal strength, that a combination of mental and physical practice improved abdominal strength, and that abdominal strength was most improved by physical practice.

355. ROMERO, Margaret C. A comparison of the effectiveness of teaching volleyball through the "fingertip" method and the "attack" method. M.S. in Physical Education, 1967. 76 p. (M. Riley)
The experimental group was taught "attack" (fisting) skills and the control group was taught "fingertip" (conventional) skills. Neither method was more effective in promoting achievement of earlier success in playing, nor in reducing individuals' ball-handling fouls. Neither method provided individuals of one group with more effective skills in terms of scoring a greater number of points. The "attack" method was more effective in lessening ball-handling fouls, in promoting higher team scoring, and was generally superior in promoting continued playing success.

356. ROYCE, Gail. A health education curriculum for girls enrolled in the three-year vocational program in Windsor, Ontario, Canada. M.Ed., 1967. 91 p. (M. Solleder)
The special needs of girls enrolled in these courses were given consideration. Interviews with teachers, school nurses, and other school personnel helped in the planning of this program. The concept approach to curriculum development was used. Selected health education specialists and education personnel reviewed the curriculum and few suggested changes were noted. A listing of selected sources of teaching materials, available to Ontario teachers, was also provided.

357. SISE, Betsy. A study of the effect of an eight-week camping experience on the self-concept of girls aged twelve to fourteen at selected private girls' camps. M.S. in Physical Education, 1967. 104 p. (C. Ulrich)
Four camps were chosen and from them 78 campers between the ages of 12 and 14 participated in the study. The subjects were given the Perkins Q-sort test of self-concept both before and after camp. Results showed a significant change in campers' self-concept at each of the camps, but no more change occurred in one camp than in any other. The discrepancy between self and ideal narrowed significantly when all the subjects were taken together.

358. SWIGGETT, James Ray. The effect of selected resistance exercises on forearm girth and grip strength. M.Ed., 1967. 58 p. (F. Pleasants)
Boys (N=43) enrolled in grades 7-9 participated in the study. Each of 3 experimental groups did specific exercises 10 minutes a day, 3 days a week, for a 6-week period. A control group was also formed. No significant changes at the .05 level occurred between groups, while significant within-group changes did occur.

359. SYLVESTER, Patricia L. A comparison of the effects of two different exercise programs on college women as measured by girth and skinfold thickness. M.S. in Physical Education, 1967. 71 p. (G. Hennis)
Women students (N=32) participated in a study of the effects of an isometric exercise program and a stretching exercise program on selected girth and skinfold thickness measurements. The measurements used were hip, waist, and right upper arm girth, and right upper arm and

subscapular skinfold thickness. It was concluded that both programs were effective in reducing girth and skinfold thickness measurements with one program being superior to the other in only one case.

360. WILKE, Barbara J. Achievement tests for selected lacrosse skills of college women. M. Ed., 1967. 62 p. (M. Riley)
Three lacrosse skills tests were devised to test achievement in selected lacrosse skills of college women who had little or no experience in lacrosse. A total of 143 subjects participated in the study. Adequate reliabilities were found for the passing test, the catching test, and the pick-up, run, dodge test. None of the 3 tests was shown to be a statistically valid measure of general playing ability as validated by judges' ratings.

University of North Dakota, Grand Forks, North Dakota

(R. D. Clayton)

361. ASHLEY, Craig B. M. A comparison of the manifest needs and teaching attitudes of selected male freshman and sophomore majors in physical education at the University of North Dakota. M.S. in Education, 1966. 43 p. (W. C. Koenig)
The Edwards personal preference schedule and Minnesota teacher attitude inventory were administered. Sophomores scored significantly higher than the freshmen on the intraception subscale of the EPPS. Consequently, they were pictured as more empathetic and self-analytical than the freshmen. No significance was found in the t ratio between the freshmen and sophomore on the MTAI, indicating no differences in attitudes toward teaching. Order subscale of the EEPS was the sole variable found to be significantly correlated with the MTAI results of the freshmen. These subjects were described as tending to be autocratic while feeling the need to be highly organized and arranged. Achievement subscale of the EEPS was the sole variable found to be significantly correlated with the MTAI results of the sophomores. The need of these subjects to be successful and accomplished was significantly related to an autocratic attitude.

362. BEDARD, Emil R. A survey of percentage of weight loss in the weight classes and chronological age groups of selected North Dakota high school wrestlers. M.S. in Education, 1966. 75 p. (W. C. Koenig)
Questionnaires were sent to the 63 high schools (34 were returned) in North Dakota which had participants in wrestling. Data were collected on 447 wrestlers. The mean percentage of weight loss for the group was 5.91 percent of the subjects' body weight. The mean chronological age of the subjects was 16 years. The number of wrestlers that exceeded the maximum recommended 10 percent body weight loss was 51, or 11.4 percent, of subjects. It was concluded that: the percentage of weight loss was not directly influenced by the chronological age of the wrestler; the percentage of weight loss varied from one school to another; and a coach rarely has justification in his recommendation that the weight of maturing boys be reduced beyond the 10 percent limits.

363. BELL, Donald A. The effect of controlled training with the Exer-Genie exerciser on the speed of the sprint start. M.S. in Education. 1966. 49 p. (W. C. Koenig)
Ten freshman and varsity sprinters who were members of the University of North Dakota intercollegiate track team served as subjects. The control group participated in the initial and final testing and followed the regularly scheduled track training and practice. The experimental group participated in similar testing and training, but also worked 2 or 3 times per week on a controlled Exer-Genie program. The initial and final tests

involved 6 timed trials for the 20-yard dash out of starting blocks and 6 trials with the reaction timer. Neither group made significant improvement in starting speed for the 20-yard sprint. No significant differences between groups were found in sprint start speed or in reaction time.

364. DeFOREST, Herbert Lee. A comparative study of fitness development involving two different methods of administering conditioning exercise. M.S. in Education, 1966. 67 p. (W. C. Koenig)
Subjects included 39 fourth, fifth, and sixth grade boys divided into 3 equal groups. The groups were: circuit training group, calisthenic group, and control group. The circuit training group and the calisthenic group participated in their respective exercise program for a period of 7 weeks. The control group took part in nothing more than unrelated activities during the time of the study. The G. F. fitness test was administered before and after the experimental period. The treatment of the data with respect to the differences between the groups indicated no significant differences at the .05 level of significance.

365. ENGEN, Mary Ann. The effects of Exer-Genie exercises and weight training exercises upon upper arm and shoulder strength for women. M.S. in Education, 1966. 68 p. (W. C. Koenig)
The purposes were to determine whether or not participation in a weight training program could increase upper arm and shoulder strength, and also to determine if participation in a systematic Exer-Genie exercise program, using isometric and isotonic contractions, would show significant results. University women (N=42) composed the experimental group and performed 3 separate exercises twice a week for eight weeks in addition to their regular class work. The control group consisted of 42 women. All participants in this study were given the bent arm hang test before and after the 8 week experimental period. The investigator concluded that a weight training program and a systematic Exer-Genie program produced significant increases in selected measures of upper arm and shoulder strength.

366. FERRIS, Aubrey C. The attitude of Manitoba high school principals toward physical education. M.S. in Education, 1966. 49 p. (W. C. Koenig)
The Wear attitude inventory was incorporated into a questionnaire, to which 91 of 100 principals of high schools responded. These comparisons were made between: older and younger principals; principals of schools with small enrollment (less than 300) and principals of schools with larger enrollment; principals with different educational preparation; principals who engaged in personal recreational sports activities and principals who indicated they did not participate in them; supervisors and nonsupervisors; and principals of schools which had a longer class time for physical education and principals of schools with a shorter class time. As an entire group, the principals had a favorable attitude toward physical education. No statistically significant attitude differences were found between the different comparison groups.

367. GAB, Del. A comparison of the physical fitness levels of athletes and nonathletes over a four-year period at the University of North Dakota. M.S. in Education, 1966. 91 p. (W. C. Koenig)
The students involved were selected freshmen who had enrolled at the University of North Dakota but did not participate in intercollegiate athletics in their 4 years of college, and athletes who participated for 3 years in intercollegiate football, basketball, wrestling, cross country, and/or hockey. The AAHPER youth fitness test was administered in 1963 and both groups were retested during the first semester of 1966-67. Some of the conclusions indicated by this study were that the athletes

showed significant improvement in all of the selected measures of physical fitness except the 50-yard dash and sit-ups; the nonathletes improved significantly in the shuttle run; the nonathletes showed a significant decrease in the 600-yard run-walk and sit-ups; and the athletes were significantly superior in sit-ups, shot put, pull-ups, standing broad jump, and the 600-yard run-walk.

368. HALIATT, Margaret M. A comparison of physical fitness levels achieved by grade ten girls through a physical education program and a competitive sports program. M.S. in Education, 1966. 87 p. (W. C. Koenig)

The purpose of this study was to compare the physical fitness levels between grade ten girls (N=38) enrolled in a physical education program which included interscholastic competitive sports activities and grade ten girls (N=38) enrolled in a physical education program which did not include such activities. The pretest was administered to both groups the sixth week of the 1965-66 school year. The post-test was administered to both groups the second week of April of the 1965-66 school year. Conclusions drawn were: neither program produced significant (.05) changes in any of the selected measures of physical fitness; and no significant differences were found between the groups when the post-test results were compared.

369. HALLATT, Douglas A. A comparison of physical fitness levels between male freshmen honor students and male freshmen students enrolled in physical education 101 at the University of North Dakota. M.S. in Education, 1966. 77 p. (W. C. Koenig)

The subjects were freshman males enrolled in the required physical education service program and 27 of the male freshman honor students not enrolled in the physical education service program. The AAHPER physical fitness test was administered to both groups. Conclusions drawn were that required physical education produced significant results in all of the selected measures of physical fitness except the shuttle run; honors students achieved fitness below the levels achieved by the average university freshman; and the elective status of physical education for honors students seemed not to meet the needs of nearly 90 percent of those students since only 5 enrolled voluntarily in Physical Education 101 during first semester 1965-66.

370. HARRIS, J. Patrick. A design for a proposed skill proficiency test in tumbling and apparatus for male physical education majors at the University of North Dakota. M.S. in Education, 1966. 53 p. (W. C. Koenig)

Two groups were used, an experimental group (N=15) and a control group (N=10), that had taken the same class previously. Both groups were given the initial test for purposes of determining item validity. The experimental group was given a retest to determine test item validity. The within (experimental) group comparison showed a significant difference in 8 of the 22 items tested. The between group comparison indicated 6 items to be significant. It was concluded that the 6 items found statistically significant in both comparisons were reliable and valid test items and are recommended for a test battery.

371. HASCHE, Carl E. A comparison of the physical fitness levels attained by participants in interscholastic athletics and in the required physical education program. M.S. in Education, 1966. 88 p. (W. C. Koenig)

The purpose was to show the improvements in physical fitness levels between athletes (N=21) and students in the required physical education program (N=26). Intra- and inter-group comparisons were made from the data collected from an 8-item physical fitness test. The results showed that the athletic group significantly improved in 6 of the 8 test items, the physical education group significantly improved in 2 of the 8 test items. Conclusions drawn were that participation in interscholastic or required physical education programs may improve physical fitness, and that participation in interscholastic athletic programs may have a tendency to produce superior levels of physical fitness.

372. HICKS, William J. The status of track and field athletics in Manitoba high schools. M.A. in Education, 1966. 92 p. (W. C. Koenig)
Questionnaires were sent to 96 high schools with 86.46 percent returns. The questionnaires supplied information on participation, facilities and equipment, meet attendance, instruction, training methods, officiating, safety procedures, finances, special problems, and methods of promotion. Conclusions drawn were that 77 (92.77 percent) of the surveyed schools participated in track and field; the majority of schools lacked equipment essential to conduct a full track and field program; over 50 percent of the respondents reported participation in 2 or more indoor and 2 or more outdoor meets per year; and in only 18.30 percent of the schools did track coaches have adequate preparation.

373. JOHNSON, Clayton A. An investigation of selected strength test results as related to weight changes in high school varsity wrestlers. M.S. in Education, 1966. 91 p. (W. C. Koenig)
Eight high school varsity wrestlers were subjects, being tested just before the wrestling season began, twice during the season, and once following termination of the wrestling season. Strength tests used were: back lift, leg lift, elbow flexion, and the shoulder bar dip. All raw scores were converted into unit strength, which was accomplished by dividing the recorded raw strength score in pounds by the weight of the individual subject. It was concluded that: significant unit strength increases were evident for each muscle group tested during the competitive wrestling season; when accompanied by adequate physical conditioning, strength gain is not dependent upon weight changes within moderate limits; that a high school wrestler can increase strength pound for pound when allowed to maintain actual normal weight, or if allowed to gain moderately; and that a coach has no justification in cutting the weight of a maturing boy unless it can be proven that normal growth and development are not hindered.

374. KALLIOKOSKI, George. A comparison of the effects of a voluntary physical fitness program on motor fitness. M.S. in Education, 1966. 85 p. (W. C. Koenig)
Public schools boys, grades 9-12, were used. An experimental group of 29 volunteered to participate in team and individual sports of their own choosing for 15 minutes a day, 5 days a week. Boys (N=40) in the regular program comprised the control group. Both groups were given 6 physical fitness tests before and after the 8 weeks of experimenting. The experimental group made significant (.05 level) gains in 5 of the 6 areas tested; the control group made significant gains in 4 areas. Both groups showed significant improvements in the vertical jump, pull-ups, the agility dribble, and in treadmill performance.

375. KING, K. DeWayne. Modern trends in the theory and teaching of pass defense in football. M.S. in Education, 1966. 70 p. (W. C. Koenig)
The material was gathered over a period of more than 10 years by the author while coaching football in a number of colleges. Conclusions reached and presented under the headings listed below were based on an

analysis of careful records. Topics discussed included the theory of pass defense; psychological factors; basic principles including alignment and stance, identifying opponents' formations, adjustments to opponents' formations, potential long receivers, keys, flow, predetermined situations, eye control, and verbal communications; three deep pass defense; and glossary of terms.

376. LEARY, Gail Nokken. A comparison of a parochial school and a public school physical education program and their effects on agility, balance, and coordination of fifth grade girls. M.S. in Education, 1966. 97 p. (LaVernia Jorgensen and W. C. Koenig)
Eight test items were administered to measure the programs' effects. Each group was tested in January and in May. Between these periods, the regular planned physical education programs were continued. The findings were that no significant differences existed between the retest scores for either school for any of the 8 tests, and there was significant improvement in only 2 of the 8 pre- and retest scores for the parochial school, and in no tests for the public school.

377. LEE, George O. P. A survey of the preparation and assignment of physical education teachers and coaches in North Dakota. M.S. in Education, 1966. 99 p. (W. C. Koenig)
This study was designed to gain information concerning the number of semester hours taken in physical education and coaching courses on the college level, of coaches in North Dakota; and to determine the teaching loads of physical education teachers and coaches. Questionnaires (730) were sent out, with 75.34 percent returned. Findings showed that nearly one-fifth of the physical education teachers and/or coaches were not qualified to teach physical education in North Dakota according to the state regulations. It was also found that the majority of those who have physical education majors and minors have over the minimum required number of hours for these respective majors and minors.

378. LONGMUIR, Gordon E. A comprehensive study of advanced tumbling and gymnastics skills instruction involving fifth and sixth grade boys and girls in Benjamin Franklin Elementary School, Grand Forks, North Dakota. M.S. in Education, 1966. 85 p. (W. C. Koenig)
A group of 30 subjects (8 boys and 22 girls) experienced an advanced gymnastic program 3 times weekly for a 2-1/2-month period. The subjects were tested on 4 intermediate level stunts at the beginning and the conclusion of the advanced gymnastic program. There was a significant increase made by the group on all of the stunts tested. No over-all significant differences between the boy and girl subgroups were evidenced on either the pretest or the post-test.

379. McCANN, Kathleen. A comparison of two methods of conditioning for endurance of college women in track and field. M.S. in Education, 1966. 65 p. (LaVernia Jorgensen)
The subjects were 49 women physical education majors enrolled in 2 track and field classes. These women participated in 2 separate conditioning programs twice a week for 7 weeks in addition to their regular classwork. The Harvard step test was given before and after the 7-week experimental period. It was concluded that a traditional method of conditioning produced a significant increase in endurance as measured by the Harvard step test.

380. McCULLOUGH, James E. The effect of handweights in starting practice on speed of sprinters. M.S. in Education, 1966. 75 p. (W. C. Koenig)

University freshman male students (N=43) from two physical education service classes served as subjects. The control group participated only in the pre- and re-test. Experimental Groups I and II participated in similar sprint training programs except that 3-pound hand weights were attached to each hand and wrist of the subjects in experimental Group II. Each group was tested prior to, and at the end of, a 6-week training program. The test was a 50-yard dash, run from starting blocks, employing a bunch start. The control group and experimental Groups I and II made significant improvement in running speed during the experimental period. There was no significant difference between the improvements each of the 3 groups made.

381. MORRISON, Percy R. A comparison of the changes observed in relation to various forms of conditioning on wrestlers and nonwrestlers at various intervals. M.S. in Education, 1966. 114 p. (W. C. Koenig)

The purpose was to analyze the changes in strength and cardiovascular fitness during a pre-season conditioning program among intercollegiate wrestlers as measured before, during, at the end of the season and 6 weeks after the conclusion of the season. Intergroup and intragroup comparisons of results were made between the experimental group of 20 collegiate wrestlers, and the control group (N=10) consisting of subjects enrolled in required physical education classes. Leg, back and arm strength data of the subjects were recorded using a back leg dynamometer and a cable tensiometer. Cardiovascular fitness was measured by the Harvard step test. Arm and leg strength of the collegiate wrestlers did increase significantly during the experimental period. The control group did not record a significant difference in any of the areas tested. The cardiovascular fitness of the subjects in the experimental group tended to deteriorate very quickly after the conclusion of the season.

382. MUSHEY, Gordon J. A comparison of two methods of teaching the elementary backstroke. M.S. in Education, 1966. 37 p. (W. C. Koenig)

Students of the University of North Dakota "Upward Bound" project volunteered as experimental subjects. After they had progressed sufficiently in basic swimming skills, the subjects were arbitrarily placed into 2 experimental groups. One group was taught to swim the elementary backstroke using the whole method of instruction, and the other was taught the same stroke using the part method. The subjects attended 10 instructional sessions after which they were rated by a committee of 4 judges on performance of the prescribed stroke. In this study, the whole method proved to be better than the part method in teaching the elementary backstroke. Members of the whole-method group were ranked 1, 3, and 4 out of the 7 who were post-tested.

383. NELSON, Gary G. An analysis of injuries sustained in physical education classes and in athletics at the secondary schools of the Grand Forks public school system during the school years 1960-65. M.S. in Education, 1966. 58 p. (W. C. Koenig)

Data were gathered from the school accident fund claim sheets. Of the 307 reported injuries, 142 were sustained during physical education classes, 140 during athletic competition, and 25 in other school facilities. In physical education, the number of injuries to male and female students were 73 and 79 respectively. Nearly half of their injuries occurred during March, April, and May. Soccer, volleyball, basketball, swimming, and trampolining accounted for the most injuries, while hands and feet were the most frequently injured body parts. Eighty-five athletic injuries took place during practice, and 54 occurred during competition.

About half of the athletic injuries occurred during the football season. The most frequent athletic injuries were sprains and contusions.

384. NEPPEL, Daniel J. A study of the changes caused by modern dance movement on flexibility and balance of college freshman football players. M.S. in Education, 1966. 93 p. (W. C. Koenig)
A group of 15 college freshman football players, which experienced a modern dance program twice weekly, and a control group of 13 subjects, were formed. They were pretested and post-tested for flexibility with the Leighton flexometer and for body balance on the stork stand test. It was concluded that modern dance increased flexibility and body balance in college freshman football players.

385. OXTON, John R. A comparison of the effects of weight control and reduction of high school wrestlers on selected measurements of stength. M.S. in Education, 1966. 174 p. (W. C. Koenig)
Right grip, left grip, push, pull, leg, and back strength data of the subjects were recorded using a dynamometer. The subjects were tested 5 times during and after the season. Intergroup and intragroup comparisons of results were made between the control group (7 high school wrestlers) and the experimental group (7 high school wrestlers who experienced a weight loss of more than 3 percent). A comparison of mean differences resulted in no significance in 5 of the areas tested.

386. POTTINGER, Donald D. A survey of curling participation among high school age students in selected states of the Upper Midwest. M.S. in Education, 1966. 74 p. (W. C. Koenig)
The study was designed to gather information concerning curling for high school age students in the states of North Dakota, Minnesota, Wisconsin, and Michigan, in areas of history, finance, sponsorship of high school curling, and interest level of high school students. Seventy questionnaires were sent to those persons believed mostly closely associated with high school curling in each town or city with a curling rink; 48 were returned. The findings of this survey suggest that school sponsored curling programs for high school students are more beneficial than programs with other means of sponsorship. It was also found that the level of interest in curling among high school age students had increased greatly. The suggestion that the respective state high school activities associations adopt the sport of curling was the main recommendation to come from the findings of this study.

387. SANBORN, Barbara Jeanne. A phenomenological approach to floor exercise as an aesthetic experience. M.S. in Education, 1966. 68 p. (L. Jorgensen)
The significance of movement was determined through systematic analysis and reflective thought. Current theories of modern dance and floor exercise were studied and the values and inadequacies of these theories were evaluated. The experience of the performer in movement and the experience of the audience viewing the movement experience was used as a field of reference. The writer concluded that the aesthetic experience developed from life processes contributes to a complete and full awareness of movement. The significance of the movement experience for the audience was concluded to be the imaginary experience of muscular movements based upon what the viewer brought to the experience from past knowledge. If past knowledge of movement were placed in a new perspective additional research could make a contribution to the total understanding of movement and the method whereby a significant movement experience could be developed.

388. SELK, Larry B. A comparison of different methods of free-

throwing practice among selected high school basketball players in North Dakota and Minnesota with respect to accuracy in games. M.S. in Education, 1966. 39 p. (W. C. Koenig)
The placement of the players in groups (small-rim and regulation-rim) was determined by the results of a pretest of free throwing and the application of the matched pairs technique. Half of each of 11 squads practiced on a 15-inch rim while the other half practiced on a regulation 18-inch rim. The small-rim was successful in 61.1 percent of game free-throw attempts as compared to 60.8 percent by the regulation-rim group. An F value of 1.33 indicated no significant difference between groups at the .05 level of significance, but the small-rim group had less variability in scores than did the regulation-rim group.

389. SPRENGER, JoAnne Govier. *A study of the changes occurring in the basketball throw for women following a weight training program.* M.S. in Education, 1966. 37 p. (L. Jorgensen)
The arm, wrist, and shoulder were the specific areas chosen for strength development. College women enrolled in 2 gymnastic classes performed 3 separate weight training exercises twice a week for 6 weeks in addition to their regular class work. The control group were volunteers from tennis, track and field, and rhythmics classes. Before the weight training began, both groups were given a test on the basketball throw for distance. The matched pairs technique was used to equate the groups from the basketball scores. After the training program and retest, the scores of the experimental group increased slightly. Control scores showed a slight decrease. Neither the increase nor decrease was statistically significant at the .05 level of significance.

390. SWAIL, William James. *Current trends and practices of intramural sports programs in selected colleges and universities with male enrollments between four thousand and seven thousand students.* M.S. in Education, 1966. 131 p. (W. C. Koenig)
A questionnaire was sent to 77 colleges and universities with enrollments between 4,000 and 7,000 male students. Returns came from 82 percent of the insitutions. Over-all development of intramural sports programs has shown considerable progress and a majority of intramural directors have accepted the newer concepts in intramural sports administration. Highly competitive sports remained as the core of the intramural program. However, a newer concept included more recreational and corecreational activities in the intramural program. Budgets and facilities appeared to be adequate enough to allow intramural directors to promote and develop a well rounded intramural sports program. The administration of the intramural sports program should be controlled by a competent and well qualified director who should be responsible for over-all program development.

391. TRENBEATH, William G. *A comparison of reaction time changes in freshman baseball players elicited by practice with the variable-speed rotating-pitching machine.* M.S. in Education, 1966. 42 p. (W. C. Koenig)
A Meylan reaction-action timer was used to test 18 freshman baseball candidates at the University of North Dakota in reaction time before and after a 6-week experimental period. Using the matched pairs technique, 9 subjects were placed in each group. The experimental group participated in a systematic training program 3 days a week for a period of 6 weeks using the variable-speed rotating-pitching machine. The control group participated in normal daily activities. Two statistical comparisons were made: a within-group comparison between the test and retest means of each group, and a comparison between the means on the retests of each group. It was concluded that, at the end of the 6-week training

period, the experimental group was significantly faster in reaction time than was the control group.

392. WEEKLEY, Marlys F. A study of increased abdominal strength and the elimination of primary dysmenorrhea in high school girls, at Ceres Union High School, Ceres, California. M. S. in Education, 1966. 75 p. (W. C. Koenig)
Seventy-five high school girls were chosen who had indicated they had dysmenorrhea and wanted help. The control group participated only in the regular physical education class. Group II did the Billig exercise daily for 10 weeks and participated in regular physical education. Group III did the V-sit exercise daily for 10 weeks and participated in regular physical education. The conclusions from questionnaire returns indicated that it was possible to assume increased abdominal strength can be as effective as the Billig exercise in helping the student overcome primary dysmenorrhea, and once exercise ceased, the V-sit was more effective for menstrual relief than the Billig exercise.

393. WILSON, Neil. A comparative study of fitness development involving two methods of administering physical activity to improve fitness. M. S. in Education, 1966. 105 p. (W. C. Koenig)
Elementary school children (N=24) were divided into 2 groups. Group I took part in a graded program which included types of calisthenics within the activity and Group II exercised for 12 minutes before regular activity. The Grand Forks physical fitness test was used to measure levels of physical fitness. The statistical comparisons were a within-group comparison between the results of the pretest and post-test means of the groups and a between-group comparison of the means of the pretest and post-test. There were some differences in physical fitness within groups. However, between-group comparisons were not significant.

North Texas State University, Denton, Texas (J. E. Douthitt)

394. BLAIR, Oscar T. A survey of physical education programs with regard to activities offered the male student in Texas junior colleges. M. S. in Physical Education, 1967. 50 p. (J. E. Douthitt)
Questionnaire returns from 34 junior colleges supplied information concerning required physical education programs for male students. Comparisons were made between programs at the private colleges and at the public colleges and between the programs and recommendations of the Texas Association for Health, Physical Education and Recreation. Findings indicated that programs at the various colleges were similar and that the programs did not meet the criteria recommended by TAHPER.

395. BRADFORD, Minnie M. A study of the effects of a creative dance program on the physical fitness level of mentally retarded subjects at Denton State School, Denton, Texas. M. S. in Physical Education, 1967. 63 p. (I. Caton)
Physical fitness test batteries were administered to 35 trainable and 27 educable mentally retarded girls at the beginning and again at the end of a training period of five weeks (40 class periods), during which time the subjects participated in a program of creative dance. Analysis of data revealed that girls who engaged in the program improved in flexibility, body strength, and cardiovascular endurance. Creative dance was recommended as a worthwhile activity for mentally retarded girls.

396. BRIEDWELL, William E. A study of present methods used in training of participants in the University of Texas State High School Cross-Country Meet. M. S. in Physical Education, 1967. 47 p.

(J. Watson)
Questionnaire returns from 68 coaches who trained boys for participation in the University of Texas State High School Cross-Country Meet in 1966 provided data for the study. It was concluded that while training methods vary greatly, the number of miles per week run by each boy seemed to be the most important single factor in training. Interval running and Fartlek training were used to some extent. A majority of the coaches had little experience in training cross-country runners.

397. EMBRY, Rodney L. *The effects of dynamic weight training upon flexibility*. M.S. in Physical Education, 1967. 53 p. (J. E. Douthitt)
Sixty college age subjects were tested for flexibility using eight specific measurements. Thirty of the subjects then participated in a 6-week program of weight training while the remaining subjects were not required to perform any regular activity. All subjects were retested at the end of the 6-week period. Analysis of the data indicated that there were no differences between initial and final scores that were significant at the .05 level.

398. FOX, Gloria J. *The effect of the vertical peg board on the performance of pull-ups by elementary school boys*. M.S. in Physical Education, 1967. 30 p. (J. E. Douthitt)
Elementary school boys who were in grades 5 and 6 (ages 10 to 14) were administered a pull-up test. The subjects from each grade were divided into two groups, equated according to these initial pull-up scores. Groups were randomly assigned to a 6-week program of training on a vertical peg board or a program of daily performance of a maximum number of pull-ups. Each group performed 2 trials per day, 4 days a week during the 6-week period. At the conclusion of the program all subjects were again tested on pull-ups. Analysis of data revealed that both groups made statistically significant gains at the .05 level; however differences between groups were not significant.

399. GILL, Sherry A. *The effects of rotation around two axes of the body upon static balance*. M.S. in Physical Education, 1967. 57 p. (I. Caton)
College women (N=59) performed the stork stand, the headstand, and the one-foot balance both before and after rotating the body around the horizontal axis and around the vertical axis. Five log rolls were used for rotating around the vertical axis and 5 forward rolls for rotating around the horizontal axis. Scores were recorded for tests with eyes open and with eyes closed. The ability of women to maintain static balance as measured by the headstand is significantly affected following rotations around the horizontal axis and the ability to perform on the stork stand and the one-foot balance are both significantly affected by rotations around either the horizontal or the vertical axis.

400. HUTTERLY, William U. *Effects of varied intervals of rest between warm-up and performance on four hundred and forty-yard dash times.* M.S. in Physical Education, 1967. 31 p. (J. E. Douthitt)
Subjects performed on the 440-yard dash after participating in a standard warm-up. Three different intervals of rest between warm-up and performance were investigated. Each subject performed an equal number of trials after rest intervals of 1 minute, 4 minutes, and 10 minutes. Scores for performance were not significantly better (.05 level) for any one time interval; therefore, it was concluded that the selected intervals of rest had equal effects upon performance.

401. NEWSOM, Roy L. A study of the relationship of health knowledge and health practices of the tenth, eleventh, and twelfth grade students of Cooper High School, Delta County, Texas during the academic year of 1966-67. M.S. in Physical Education, 1967. 80 p. (J. Watson)

Standardized tests measuring health knowledge and health practices were administered to all students (180) in grades 10, 11, and 12. The amount of health knowledge possessed by students increased as the grade level increased although the mean score for all students ranked below the 50th percentile on national norms. The mean scores for health practices were below the 30th percentile for each class. For all grades the scores and the relationship between knowledge and practices were highest for the area of mental health and poorest for the area of nutrition.

402. PRUITT, Warren B. A study of coaching techniques employed by coaches of the Interscholastic League Boys' Championship Class B basketball teams of Texas. M.S. in Physical Education, 1967. 57 p. (J. Watson)

Questionnaire returns from 60 coaches supplied information relative to coaching techniques used in Class B senior high schools which finished first or second in bi-district tournaments in Texas for the 1966-67 season.

403. SHOOK, Helen J. A study of the relationship of professional preparation and teaching experience of women graduates of North Texas State University with a major in health, physical education and recreation during the college sessions of 1954-66. M.S. in Physical Education, 1967. 80 p. (I. Caton)

Questionnaire returns from 135 women graduates between 1954 and 1966 who spent their final 2 years at North Texas and who have had teaching experience provided data for the study. Results indicated that a majority of the women graduates teach in the secondary schools in urban school districts of North, Central, and West Texas; that most of the graduates indicated inadequate preparation for both curricular and extracurricular activities; and a high percentage have continued professional preparation through graduate study.

404. TERRELL, Ruth E. Relation of pre- and post-puberty anthropometric measurements and physical fitness test scores of American Negro and Caucasian females as measured by the AAHPER physical fitness battery. M.S. in Physical Education, 1967. 77 p. (W. Wyrick)

Anthropometric measurements and physical fitness scores for 50 pre- and post-puberty Negro females of junior high school age were the data used for determining relationships between anthropometric measurements and physical fitness. It was concluded that there was no relationship between anthropometric measurements and physical fitness. Negroes have a significantly longer leg, longer arm and hand, longer foot, a wider shoulder girdle, and a narrower pelvic girdle than Caucasians. The performance of Negroes was superior to that of Caucasians on the 50-yard dash and the softball throw for distance.

Ohio State University, Columbus, Ohio (D. K. Mathews)

405. BALL, Beverly Ann. The primary school child's self-concept: The influence of the child-centered program of physical education. Ph.D. in Physical Education, 1967. 151 p. (M. A. Mordy)

Second grade subjects' self-adjustment scores were examined in relation to the type of physical education experienced for 50 consecutive school days. Subjects experiencing individual movement exploration activities gained in standardized test mean scores at the .01 level of confidence; subjects participating in recess showed loss in mean scores.

406. BECKER, John E. The relationship of childhood obesity to cardiovascular fitness. M.A. in Physical Education, 1967. 25 p. (D. K. Mathews)

Forty-seven fifth-grade subjects were measured for obesity using skinfold calipers and for fitness using the modified Balke treadmill test. Results indicated a significant relationship between skinfold measures and fitness.

407. BRIWA, Helen H. A study of the comparative effectiveness of five-foot skis and skis of regular length in teaching beginning skiers. Ph.D. in Physical Education, 1966. 63 p. (M. A. Mordy)

Three groups were equated on factors of dynamic balance and experience and compared at 4 and 8 weeks for skiing ability (determined by form and speed). No significant differences were found among groups.

408. HOUSTON, Sara L. A phenomenological study of movement behavior. Ph.D. in Physical Education, 1967. 237 p. (M. A. Mordy)

This study investigated phenomenologically two aspects of movement behavior in relation to personality correlates of college women measured by the Cattell 16 PF questionnaire. One aspect explored subjective reactions to an experienced movement improvisation and preferences for movement evoked. The other involved its observation on videotape for personality traits.

409. KURUCZ, Robert L. The construction of the Ohio State University cardiovascular fitness test. Ph.D. in Physical Education, 1967. 54 p. (D. K. Mathews)

The purpose was to construct a submaximal cardiovascular fitness test. The Balke treadmill test was used as the criterion measure. Both reliability and validity were satisfactory. To determine strenuosity of the test, energy cost using open circuit spirometry was measured.

410. MALUMPHY, Theresa M. Personality and general characteristics of women athletes in intercollegiate competition. Ph.D. in Physical Education, 1966. 222 p. (M. A. Mordy)

Four general variables were investigated: personality characteristics, early experience in sports activity, family sports participation, and personal feelings about competition. Four groups of sports participants were tested: those engaged in individual sport, team sport, team-individual, and nonparticipants. The Cattell 16 PF test of personality and a personal information questionnaire were administered to the above groups which were selected from the 5 largest state universities in Ohio. Faculty adviser estimation of participant personality was ascertained. Significant differences in personality and other variables resulted.

411. O'BRIEN, Ronald F. The effects of frequency of training on cardiorespiratory conditioning. Ph.D. in Physical Education, 1967. 40 p. (D. K. Mathews)

Twenty-four subjects were used to compare training twice weekly versus four times weekly in running. The variables measured were: maximum $\dot{V}_{O_2}$, Harvard step test, exercise and recovery heart rates, 880-yard run, 220-yard run. Statistical analysis by the t method revealed no significant differences between groups after training.

412. PLESE, Elliott R. A comparison of videotape replay with a traditional approach in the teaching of selected gymnastic skills.

Ph. D. in Physical Education, 1967. 137 p. (L. A. Hess)
This study compared the effect of immediate analysis of a motor performance by using videotape instant replay with that of a conventional method of instruction which utilizes only verbal explanation, demonstration, practice, instructor analysis, and correction. The chi-square value was significant beyond the 0.001 level; therefore, the null hypothesis was rejected.

413. SWANSON, Richard A. American Protestantism and play, 1865-1915. Ph. D. in Physical Education, 1967. 224 p. (B. L. Bennett)
This study describes the changing attitude toward play and recreation which occurred in most Protestant denominations between 1865 and 1915. Recreational activities contributed to church life through community outreach, fellowship, Christian education and financial gain. Some church leaders gave support to early community recreation and school physical education movements.

414. TANDY, Ruth E. Effects of programed instruction on the attitudes, behavior, and knowledge regarding smoking among selected seventh-grade students. Ph. D. in Health Education, 1966. 77 p. (M. A. Mordy)
Programed instruction on smoking did significantly increase the knowledge of seventh-graders. Significant differences were found among the subjects' attitudes toward various aspects of smoking. Osgood's semantic differential was effective in measuring attitudes and the subtlety of this instrument suggested an interesting incongruity in the attitude of the seventh-graders toward smoking.

415. TANZI, David E. The physiological changes concomitant with the detraining process. M. A. in Physical Education, 1967. 51 p. (D. K. Mathews)
Nine subjects were tested on identical rides at 3-week intervals during a 10-week detraining period. The following variables were measured: maximal oxygen consumption, ventilation, exercise and recovery heart rates, and the Harvard step test. Statistical analysis revealed significant decreases in maximal oxygen consumption and the Harvard step test.

416. WEBB, Wyatt M. Three interval training programs and their effects on selected physiological variables. Ph. D. in Physical Education, 1967. 75 p. (D. K. Mathews)
This study determined the effect of 3 interval training programs (1 short; 2 long; and 3 mixed distances) on fitness of young men (N=23). Primary criteria were maximum oxygen consumption, oxygen debt, exercise and recovery heart rates. Conclusion: a mixed distance training program is most effective but it should be predominately short distance running.

Oklahoma State University, Stillwater, Oklahoma (A. B. Harrison)

417. DOOLEY, Aubrey C. A history of fiberglass pole vaulting. M. S. in Physical Education, 1966. 47 p. (A. B. Harrison)
The first fiberglass vaulting pole was produced by the Pacific Laminates Company of Costa Mesa, California. The first fiberglass vaulting pole was made by Mr. Herbert Jenks when he joined two tuna-jack fishing poles together. In the 1952 Olympics, Bob Mathias used one of the fiberglass poles in winning the decathlon. In 1957 Jim Brewer vaulted over 15 feet with the pole as a high school student. In 1958, George Davies of Oklahoma State broke the world record using the pole. The first 16-foot vault was recorded in 1962 by Uelses and the first 17-foot vault in 1963 by Pennel, both using the fiberglass pole.

418. FERGUSON, Don P. *Racial comparisons and relationships of reaction time, body movement time, and sixty-yard dash performances.* M.S. in Physical Education, 1967. 29 p. (A. B. Harrison)
Reaction time, body movement time, and 60-yard dash times were taken on 20 white varsity track athletes from Oklahoma State University and 20 Negro varsity track athletes from Langston University. The Negro group had faster mean reaction times and movement times but the differences were not statistically significant. The Negro group had the faster mean 60-yard dash time by .26 secs. (sig. at 10 level). Correlations were made between the three variables in each group resulting in positive and significant correlations in the Negro group. The Negro superiority in 60-yard dash times could not be attributed to superior reaction times.

419. RITCHESON, Harold V. *The relationship of several physical fitness variables in selected elementary school children.* M.S. in Physical Education, 1966. 51 p. (A. B. Harrison)
Subjects were 100 fourth grade boys and girls. Data on the following variables were collected and correlated: age, height, weight, IQ, leg strength, body movement time, 50-yard dash, shuttle run and standing broad jump. The mean scores on AAHPER test items were compared to national norms. Several significant correlations were found with the highest being weight with leg strength (.48), leg strength with shuttle run (-.35), and leg strength with 50-yard dash (-.38).

420. STOLHAND, Glen L. *The correlation between the Harvard step test and the Oklahoma State University progressive step test.* M.S. in Physical Education, 1966. 29 p. (A. B. Harrison)
Thirty college males took the Harvard step test and the Oklahoma State University progressive step test during which the height of the stepping platform was increased one inch each minute. A significant $\bar{r}$ of .39 was found between the two tests. A significant difference was found between the mean scores of physical education majors (N=15) and nonmajors (N=15) on the Harvard step test but not on the progressive step test.

University of Oregon, Eugene, Oregon (E. R. Reuter)

421. ADLER, Jack Delbert. *The use of programed lessons in teaching a complex perceptual-motor skill.* D. Ed. in Physical Education, 1967. 140 p. (W. Brumbach)
An intrinsic program for the iron swing in golf was written and put into scramble book form. This was tested for effectiveness by dividing three elementary golf classes at the University of Oregon into an experimental group which used the program and a control group which received conventional lecture, demonstration, and practice type instruction. Both groups were pretested on the Benson iron shot test, worked on the skill for 6 weeks, and then were retested. Results indicated significantly (.05 level) greater improvement for the group using the programed lessons.

422. BECKER, Beverly J. *Construction of a muscular strength test for college women.* Ph.D. in Physical Education, 1967. 128 p. (H. H. Clarke)
Twenty-three cable-tension strength tests and 12 anthropometric measures from which 20 indices were also derived, were given to 18 women (N=72) at each age 18 through 21 years at Skidmore College. By multiple correlation and factor analysis procedures, 3 strength tests were chosen: shoulder flexion, ankle plantar flexion, and hip flexion. The highest 2-variable multiple correlation of anthropometric measures and indices with the strength criterion was 588; the measures were arm

girth and sitting height. For norms, a total of 372 college women, ages 18 through 21 years, were randomly selected from the student bodies of Skidmore and Mount Holyoke Colleges. Two strength norm tables were established: (1) Double-entry norm table based on arm girth and sitting height, according to the procedures adopted by Rogers in constructing strength index norms; (2) T scale according to McCall's method.

423. BECKOW, Paul Arthur. A comparison of the effectiveness of mental practice upon the learning of two gross motor skills. M. S. in Physical Education, 1967. 155 p. (W. B. Brumbach)
Male subjects were given a pretest on the badminton long and short service and then assigned to one of 3 groups. All groups received 6 10-minute sessions of mental practice which was aided by viewing loopfilms and reading a kinesiological description of the activity. One group mentally practiced the short serve; another mentally practiced the long serve; while a third group mentally rehearsed the putt in golf for 2 weeks. Retests indicated that the short serve group improved significantly in its short service ability and the long serve group made a significant improvement in its long service ability. The short serve group was significantly superior to the other groups on the short serve retest. No significant difference was found between the groups when the retest scores on the long serve were compared.

424. BLOOMFIELD, John. Anatomical and physiological differences between three groups of swimmers of varying abilities. Ph. D. in Physical Education, 1967. 194 p. (P. O. Sigerseth)
Subjects were 120 senior-level swimmers who were divided into 3 ability groups on the basis of 2 criteria. Of the means from the 39 tests administered in the study, only in 3 of the comparisons did the means of the national-level group significantly surpass those of the high-level university swimmers. In contrast, the means of the national-level group were significantly higher than those of the low-level university swimmers in 14 tests. The high-level university swimmers' means were, in turn, significantly higher than those of the low-level university swimmers in 9 instances. In no instances were the means of the high- and low-level swimmers significantly higher than those of the national-level swimmers, nor were the means of the low-level swimmers in any instances higher than those of either of the other two groups.

425. BRISTOW, Derek P. Energy cost of carrying packs of different weights by physical education male students. M. S. in Physical Education, 1967. 65 p. (H. H. Clarke)
The energy cost of carrying packs was measured by the indirect method of determining oxygen uptake while subjects (20 male physical education majors) walked at 3 miles per hour up a 12 percent grade on a motor-driven treadmill. Each subject performed 5 walks of 10 minutes each with the same pack but different weight loads: 0, 15, 30, 45, and 60 pounds. The results showed that the 15-pound variation in pack weight was sufficient to achieve significant differences between mean energy costs for adjacent walks; a disproportionate increase of energy-cost increase of energy occurred in the region of the 45- and 60-pound packs; and height, weight, and physical fitness index (negative) were significantly correlated with energy cost.

426. CALL, Clifton B. An electromyographic study of selected biarticular muscles involved in movements at the tibiofemoral and iliofemoral joints. Ph. D. in Physical Education, 1967. 197 p. (P. O. Sigerseth)
The data were collected in a 12' x 12' copper-screened room on a Honeywell medical electronics system apparatus. The apparatus provided three

channels of electromyography and two channels of electrogoniometry. It was found that when the sartorius muscle contracted against a resistance, action potentials were recorded during movements in which the leg and thigh were flexed. Thigh flexion and leg extension movements elicited action potentials from the rectus femoris muscle. The semitendinosus muscle demonstrated action potentials during the performance of leg flexion and thigh extension movements. Action potentials of lesser amplitudes were generally recorded during a gravity-aided phase of a motion than during an antigravity phase.

427. CORBEIL, Gerald. The influence of two types of physical education programs on the motor fitness of elementary school boys and girls. M.S. in Physical Education, 1967. 98 p. (E. R. Reuter)

428. DALTON, Joyce. Relationship between physical fitness and social class. M.S. in Physical Education, 1967. 62 p. (E. Wooten)

429. DOANE, Belvin L. A study of the relationship between reflex time and reaction time. M.S. in Physical Education, 1967. 43 p. (E. Wooten)

430. DOCHERTY, David. Longitudinal analysis of the rate and pattern of growth of selected maturity, structural, strength, and motor ability measures of boys ten to sixteen years of age. M.S. in Physical Education, 1967. 150 p. (J. Broekhoff)

The yearly velocity rates of skeletal age and most of the functional variables of 106 boys were relatively consistent over the 6 years; the structural variables showed less consistency. Most of the variables displayed a near-linear growth pattern. The highest correlations between velocity rates and the experimental variables were for the structural measures. The correlations between the velocity rates of standing height and leg length increased from .44 at 11 years to .81 at 16 years of age. The relationships between skeletal age and structural velocity rates were low but generally significant; those between structural and functional measures were mostly insignificant.

431. ECKERSON, John. Changes in selected physiological parameters as a function of low ambient temperature during exercise. Ph.D. in Physical Education, 1967. 103 p. (P. O. Sigerseth)

Three subjects classified as indoor-trained, 3 classified as outdoor-trained, and 2 classified as untrained performed at different times on a bicycle ergometer, in ambient temperatures of 20°, 10°, 0°, -10°, -20°, and -30°C. It was found that the efficiency of the pedaling performed, when incremental work loads were involved, decreased as the ambient temperatures in the cold room became lower. The efficiency of the pedaling, when the work loads were minimal, remained relatively stable, irrespective of changed temperatures. The quantities of work performed in -20° and -30°C. temperatures were approximately 40 percent lower than the quantities performed in 10° and 20°C. temperatures.

432. FLYNN, Kenneth W. Responses on the Davidson adjective check list as related to maturity, physical, and motor ability characteristics of sixteen year old boys. Ed.D. in Physical Education, 1967. 172 p. (H. H. Clarke)

The Davidson adjective check list (50 adjectives) and 19 tests of maturity, physical, and motor ability were administered to 205 16-year-old boys. The experimental variables showing greatest differentiation were skeletal age, endomorphy, cable-tension strength average, Rogers' strength index, 10-foot speed, and standing broad jump. The following example is given: those boys who thought of themselves as leaders had significantly superior means on Rogers' strength index and physical fitness index, Rogers' arm strength score, bar dips, 10-foot run, 60-yard shuttle run, and standing broad jump and possessed an inferior endomorphy mean.

433. GRIFFIN, Norma S. A comparison of the heart rates of female college participants in field hockey and basketball. Ph. D. in Physical Education, 1967. 126 p. (P. O. Sigerseth)
Telemetered electrocardiograms were obtained during and following participation in field hockey and basketball games from 27 college women. The heart rates of subjects were found to be significantly higher when they played as roving players than when they played as nonroving players in basketball games. No significant difference was found between the heart rates of players who played in forward line positions and those who played in backfield positions in field hockey games. It was concluded that the playing of field hockey is more demanding, in terms of the heart rates of the subjects participating, than is the playing of basketball.

434. HATANO, Yoshiro. Determination of the strength of the upper extremities of the body. Ph. D. in Physical Education, 1967. 100 p. (P. O. Sigerseth)
The testing instrument was a modified form of a typical pull-up test, in which a subject, while lying in a supine position on a testing table, exerted a maximum effort in a simulated pull-up movement against the resistance of a horizontal bar. The testing method, which was arbitrarily named the upper extremity strength test, was simple to administer and low in cost in terms of construction, upkeep, and in the time required to do the testing. The testing equipment was durable, required relatively little room, and was simple to operate. The reliability coefficients of the test ranged from .907 to .916. No significant differences were found between the means of the upper extremity strength scores and the strength index scores of various race and age groups at the Tongue Point Job Corps Center.

435. HEAD, Dwayne G. A study of changes which occur in measures of leg strength and arch flexibility following a program of selected foot exercise. Ph. D. in Physical Education, 1967. 119 p. (E. Wooten)
The following tests were administered to all subjects (89 first grade girls): weight, height, inversion strength, eversion strength, plantar flexion strength, dorsal flexion strength, foot length, navicular drop, ankle overhang, and arch angle. The 9 girls with the best feet and the 8 girls with the poorest feet were further evaluated for muscle activity present in 3 leg muscles by use of an electromyograph. A 7-week program of selected foot exercises was administered to 69 of the girls. It was concluded that: those girls who participated in the exercise program did have significantly superior strength increases; there were no relationships between the measures of leg strength and arch flexibility; little difference in muscle activity was observed between the good group and the poor group; and the exercise program resulted in no change in muscle activity observed.

436. HILTON, Susanne L. Cardiovascular and respiratory changes in married women after a twelve-week program of progressive jogging. M. S. in Physical Education, 1966. 93 p. (E. Wooten)

437. HOFMEISTER, Alan M. The relationship of motor proficiency to academic achievement and selected socio-personal variables in educable mentally retarded children. M. S. in Physical Education, 1967. 75 p. (E. Wooten)

438. INSLEY, Gerald S. Differences in the height, weight, and physical performances of sixteen-year-old Navajo and Caucasian males. M.S. in Physical Education, 1966. 84 p. (P. O. Sigerseth)
It was found that the Navajo subjects, at the integrated high school, did not differ significantly from the Navajo subjects at the all-Indian school in any of the tests and measurements. The Caucasian subjects were found to be taller and heavier than the Navajo subjects from both the integrated and the nonintegrated schools. The Caucasian subjects also surpassed the integrated Navajo group in balance, and both Navajo groups in agility, and in the tests of strength. No significant differences were found between the integrated Navajo subjects and the Caucasian subjects in the tests of endurance, power and speed, or in the right elbow extension and the left group strength tests.

439. JOHNSON, Bonnie Lee. An examination of some factors which might be related to effective utilization of mental practice in learning a gross-motor skill. M.S. in Physical Education, 1967. 118 p. (W. B. Brumbach)
A control group (N=38) and mental practice group (N=133) of sixth grade boys and girls were given a pretest of the one-wall handball serve. Two weeks later, the mental practice group received 5 5-minute sessions of mental practice. Both groups were then given a post-test and an 8-week retention test. The mental practice group made a significant improvement in serving the handball after mental practice, but it was not significantly different from the control group on either the post-test or retention test. There was a significantly greater percentage of males in the more successful mental practice group when compared to the percentage of males in the less successful group.

440. JOHNSON, Rose Marie. Determination of the validity and reliability of the badminton placement test. M.S. in Physical Education, 1967. 54 p. (E. R. Reuter)

441. KELSO, John G. A study of the personality characteristics and the practices and attitudes of college varsity and freshmen swimming team members. M.S. in Physical Education, 1967. 96 p. (E. R. Reuter)

442. LOWENBERGER, Arnold G. Construction of a muscular strength test for college men. Ph.D. in Physical Education, 1967. 117 p. (H. H. Clarke)
Twenty-three cable-tension strength tests and 12 anthropometric measures, from which 20 indices were also derived, were given to 18 men (N=72) at each age 18 through 21 years at the University of Saskatchewan, Regina Campus. By multiple correlation and factor analysis procedures, 3 strength tests were chosen: ankle plantar flexion, shoulder extension, and knee extension. The highest 2-variable multiple correlation of anthropometric measures and indices with the strength criterion was .580. The measures were arm girth and abdominal girth. For norms, a total of 372 college men, ages 18 through 21 years, were randomly selected from students enrolled at the two University of Saskatchewan campuses at Regina and Saskatoon. Two strength norm tables were established: (1) double-entry table based on arm girth and abdominal girth according to the procedures adopted by Rogers in constructing strength index norms; (2) T scale according to McCall's method.

443. McCLEARY, Peggy H. Comparison of various leg positions in the sit-up test performed by high school girls. M.A. in Physical Education, 1967. 39 p. (E. Wooten)

444. McNEILL, Alexander W. An electron microscopic examination of muscle ultrastructure following a program exercise. M. S. in Physical Education, 1967. 83 p. (P. O. Sigerseth)
The data for this study were provided from electron micrographs of the metathoracic extensor tibia of the giant African locust, Schistocerca Gregaria. An experimental group (N=4) was exercised every second day for 5 consecutive exercise days while the control group (N=4) was not. The muscular contractions were initiated by 60-volt shocks, 8 times each second, and were continued until the insect was unable to move the resistance. A grass force-displacement transducer model FT . 03 was used to measure the force both groups of insects could produce at the distal ends of their tibias. The only detectable change which took place in the ultrastructure of the jumping muscles of the locusts, which had undergone a severe program of exercise, was an increase in the cross-sectional dimensions of the mitochondria.

445. MORTON, Alan R. Comparison of Sheldon's trunk index and anthroposcopic methods of somatotyping and their relationships to the maturity, structure, and motor ability of the same boys at nine through sixteen years of age. Ed. D. in Physical Education, 1967. 173 p. (H. H. Clarke)
Generally, the trunk-index assessment (Sheldon) produced higher somatotype designation of components for all ages than did the anthroposcopic method (Health); correlations between the 2 methods for the various ages ranged from . 394 to . 758. Consistently for the several ages, the trunk-index method identified more subjects with endomorphy; the anthroposcopic method identified more boys as mid-types. The somatotype components by anthroposcopic assessment correlated higher with maturity, body size, strength, and motor ability tests than did the trunk-index assessment in 91 percent of the comparisons where a significant difference occurred.

446. NEELY, Jean J. Construction of norms for cable-tension strength tests for upper elementary, junior high, and senior high school girls. Ed. D. in Physical Education, 1967. 98 p. (H. H. Clarke)
Cable-tension strength (25) tests and 36 anthropometric measures were obtained from 24 girls in each grade from 4 to 12. The following strength tests were selected that would adequately reflect the total musculature for upper elementary school girls: shoulder extension, hip extension, and trunk flexion; for junior high school girls: shoulder extension, hip flexion, and ankle plantar flexion. In this study, scores on the selected strength tests, age, and weight were obtained from 124 girls in each grade, 372 at each school level, 1, 116 over-all. Norms were constructed following Rogers' method of constructing strength index norms. Two measures resulted: strength composite, the sum of the 3 strength tests; and strength quotient, strength composite divided by norm multiplied by 100.

447. PATTEE, Lawrence L. An evaluation of the feet and legs of first grade boys and the effect of a special exercise program on the feet and legs. Ph. D. in Physical Education, 1967. 91 p. (E. Wooten)
There were significant correlations concerning measures of size and strength, but not significant correlations between structural measures and size, or strength. The subjects with the best feet tended to be slightly heavier and stronger than the subjects with the worst feet. A 7-week special exercise program tended to increase strength somewhat. There was no difference in muscle activity between the subjects with the best feet and the subjects with the worst feet. The tibialis anterior and extensor digitorum longus muscles were quiet in both the sitting and standing positions.

448. RAVEN, Pater B. Changes occurring in the serum lactic acid dehydrogenase of the golden hamster after exhaustive exercise. M.S. in Physical Education, 1967. 79 p. (J. Bloomfield)
Twenty male hamsters served as the control and experimental groups of animals. The serum LDH isozyme levels of each animal were determined prior to the swimming exercise, and then the hamsters were made to swim to exhaustion while carrying a weight which was equivalent to 2 percent of their body weight. The principal finding in the study was that the serum LDH V isozyme level did not increase following severe exercise. In a further analysis of the data from uncorrelated groups of non-haemolyzed blood samples, it was found that serum LDH isozyme III and serum LDH isozyme IV were significantly lower following exercise.

449. SAMPSON, Orwyn. Attention and learning selected motor skills. Ph. D. in Physical Education, 1967. 154 p. (W. Brumbach)
Three separate studies were included in the investigation. The tasks included the kip on the horizontal bar (relatively difficult skill), the forward hip circle on the horizontal bar (medium difficulty), and the headspring (relatively easy skill). The subjects (299 college males) in each study were divided into 7 groups with each group receiving a different set of instructions. It was found from an examination of general, specific and self-directed groups, that learning seemed to be facilitated when the instructions given in earlier practice sessions were "generalized" (simplified) as contrasted with the giving of greater detail in early instructions. The value of simplifying instructions later in learning appeared to increase with task difficulty.

450. SANDSTROM, E. Roy. Longitudinal analysis of total-body reaction time and movement time of junior high school boys. M. S. in Physical Education. 1967. 109 p. (H. H. Clarke)
Total-body reaction and 10-foot movement times of the same 165 boys were tested with the Hale reaction timer. These times were related to skeletal age groups, somatotype categories, and levels of athletic ability. Among the significant findings were: improvement in both reaction and speed times from age 13 to 15 years; significant gains over these ages for middle and advanced skeletal age groups, mesomorph and mid-type somatotype groups, and athletes; slower reaction times for endomorphs and endo-mesomorphs and faster reaction time for athletes; and low correlations between total-body reaction and 10-foot movement times.

451. SCHREIBER, Mary L. Comparison of selected physical activities and their respective contributions to physical fitness. M. S. in Physical Education, 1967. 65 p. (E. Wooten)

452. SEIDLER, Martin G. Construction of norms for cable-tension strength tests for upper elementary, junior high, and senior high school boys. Ph. D. in Physical Education, 1967. 72 p. (H. H. Clarke)
Cable-tension (25) strength tests and 36 anthropometric measures were obtained from 24 boys in each grade from 4 to 12. Analyses were made at 3 levels, upper elementary, junior high, and senior high school, in order to select the minimum number of strength tests that would adequately reflect the total musculature and the anthropometric tests that would best provide bases for norms. The same three strength tests were selected at each level: shoulder extension, knee extension, and ankle plantar flexion. In this study scores on the three strength tests, age, and weight were obtained from 124 boys in each grade, 372 at each school level, 1, 116, over all. Norms were constructed following Rogers' method of constructing strength index norms. Two measures resulted:

strength composite, sum of the three strength tests; and strength quotient, strength composite divided by norm multiplied by 100.

453. SHEPARD, Ralph G. The effects of the specialized conditioning program on the reaction, performance, and movement times of the University of Oregon football team. M.S. in Physical Education, 1967. 49 p. (E. R. Reuter)

454. SIMONSON, Ronald K. The significance of injuries to athletes in selected Oregon Class A-1 high schools. M.S. in Physical Education, 1967. 91 p. (E. R. Reuter)

455. WALLIN, Charles C. Physiological changes recorded in middle-aged men following participation in a ten-week jogging program. M.S. in Physical Education, 1967. 63 p. (J. S. Schendel)
Subjects were 21 middle-aged males, previously sedentary, who participated in a jogging program. The data, which included heart rates and blood pressures, were taken before and after a 10-week jogging program during a 3-minute pre-exercise period, a 6-minute submaximal bicycle ergometer ride, and a 5-minute post-exercise period. An analysis of the data revealed that the subjects had significantly lower heart rates during the second and third minutes of pre-exercise, during each minute of the 6-minute exercise bout, and during each minute of the 5-minute recovery period than before training began. The blood pressure measurements revealed no significant differences between the initial and final tests.

456. WARD, J. Barrymore. Relationships between standing broad jump criteria and selected physical variables and comparison of these criteria for twelve- and fifteen-year-old athletes and nonathletes. M.S. in Physical Education, 1967. 85 p. (J. Broekhoff)
Three standing broad jump criteria were utilized: distance jumped, distance x body weight and distance/body weight. The subjects were 141 12-year-old boys in elementary school and 174 15-year-old boys in junior high school. The highest multiple correlations for distance jumped were .756 at 12 years with 60-yard shuttle run, Rogers' arm strength score, skinfold total (negative), and cable-tension strength average; .768 at 15 years with physical fitness index, 60-yard shuttle run, body weight, and cable-tension strength average. Multiple correlations for distance x body weight and for distance/body weight are also reported. Distance jumped and distance x weight both differentiated between athletes and nonathletes at both ages; the former criterion was the best differentiator.

457. WILSON, Peter G. Personality traits, academic achievement, and health status of university freshmen men with low and high physical fitness scores. M.S. in Physical Education, 1967. 177 p. (H. H. Clarke)
Ten men with the highest and 10 men with the lowest physical fitness scores from the 1966 entering freshman class at the University of Oregon were given individual case studies. Some of the results were: low fitness students averaged three inches taller than the high fitness group and had a higher weight mean (187 vs. 146 pounds); low fitness students were more endomorphic and high fitness students were more mesomorphic in physique type; low fitness students had more difficulties maintaining a satisfactory GPA compatible with their scholastic aptitude; low fitness students had 45 visits to the student health center as contrasted with 35 visits by the high fitness students; on the Clarke health habit questionnaire, the low students checked a total of 125 faulty health habits as compared with 74 for the high fitness group.

458. WHITTY, Alice-Ann D. The effects of weight training on the high jumping performance of girls. M.S. in Physical Education, 1967. 54 p. (E. R. Reuter)

Pennsylvania State University, University Park, Pennsylvania
(E. A. Gross)

459. BOARMAN, Marie. The effects of strength training on speed of elbow flexion. M.S. in Physical Education, 1967. 62 p. (R. C. Nelson)
Nineteen female college students were tested for static strength at the right elbow and for elbow flexion speed using stroboscopic-photographic techniques which provided for a segmental analysis of the movement. Ten subjects participated in a program of progressive resistance exercises while 9 served as controls. The results indicate that strength training does not lead to significant speed changes and that a positive relationship exists between strength and speed of movement.

460. BOWES, Barbara F. The effect of specific exercises on selected skinfold and girth measures of college women. M.S. in Physical Education, 1967. 94 p. (L. I. Magnusson)
College women were divided into an experimental group of 20 and a control group of 24. The experimental subjects participated in 3 one-hour classes per week for 10 weeks. These classes consisted of 30 minutes of body mechanics and 30 minutes of specific exercises for the first 5 weeks and 30 minutes of modern dance techniques, compositions, and lectures with 30 minutes of specific exercises for the second 5 weeks. The control group attended no physical education classes. Skinfold and girth measurements were taken; and height and weight were recorded. There were no significant differences between groups in the measures analyzed. There were several significant within-group changes, more in the experimental than in the control group, and more evident during the fifth-to-tenth week comparisons.

461. BROGOWSKI, Richard F. The effects of individual or group participation on the rate of performing a sustained motor task. M.S. in Physical Education, 1967. 76 p. (E. A. Gross)
Freshman and sophomore males (N=92) rode bicycles as fast as possible for 3.89 miles under 3 different conditions: a self-motivating performance in which the individual competed against his previous best scores; a competitive performance as a member of a group consisting of persons at similar endurance levels (homogeneous group); and a competitive performance as a member of a group consisting of persons at varied endurance levels (heterogeneous group). The subjects' performances in this study, which required maximal muscular exertion for a period of approximately 12 to 19 minutes, were not significantly affected under the experimental conditions.

462. GROVE, Carol K. Historical analysis of the recreation patterns at Raystown Reservoir, Juniata River, Pennsylvania. M.S. in Recreation, 1967. 187 p. (F. M. Coombs)

463. HANLEY, Elizabeth A. Concomitance of skill acquisition by two body parts with concurrent practice. M.S. in Physical Education, 1967. 65 p. (B. H. Massey)
Women students (N=26) practiced a similar motor task for 18 sessions over a 6-week period in an effort to determine the $\bar{r}$ between rate and amount of skill acquired by two body parts, the foot and hand, respectively. The task consisted of pushing a 3-inch hard rubber disc onto a

concentric-ringed target which measured 6-2/3 feet in diameter and was located 10 feet away. Each subject was permitted 25 trials with her preferred foot and 25 trials with her preferred hand during a practice session. No significant relationship existed between the way the motor skill was acquired in terms of rate or amount by the two different body segments. The findings substantiated the theory of specificity of motor ability as opposed to the concept of the existence of a general factor.

464. McDONALD, Candace L. Influence of practice on the acquisition of a complex motor skill by eight-year-old children. M.S. in Physical Education, 1967. 61 p. (B. H. Massey)

465. MARCUS, Judith. The immediate effects of altered resistance upon speed of movement. M.S. in Physical Education, 1967. 53 p. (R. C. Nelson)
College women (N=22) were tested for speed of resisted elbow flexion under 3 experimental conditions consisting of 3 phases. Trials in the first and third phases were performed with a moderate resistance, 8 percent of subjects' flexion strength score. The trials in phase two were performed with either no resistance (8 percent load removed), called underload; 8 percent of strength score, called control; or 16 percent of strength score, referred to as overload. The results indicated that overload had no immediate effect upon speed of movement while underload caused a significant decrease in speed as compared to the control condition. The subjects perceived the post-overload trials as being faster (a "kinesthetic illusion" since M T was not affected), and the post-underload trials as being slower.

466. ROTH, Dale Mark. The effects of air pollution on selected species of evergreen trees in a Pittsburgh, Pennsylvania, park. M.S. in Recreation, 1967. 125 p. (B. van der Smissen)
Three sets of 3 branches were selected on each of several types of evergreen trees and were fumigated by one of 3 air treatments - filtered, ambient, or control, over a period of 14 months. The records obtained from monitoring the pollutants showed that the 24-hour average concentrations of sulfur dioxide were below 0.10 ppm, while the average daily concentrations of ozone were below 3.13 pphm. The air pollution did not affect the growth of branches and needles of eastern white pine, scotch pine or eastern hemlock. However, the branches and needles of Fraser fir in the filtered air treatment were found to be significantly longer than those growing in the other two treatments.

467. STEVENSON, Carol Lynn. The effect of practice task difficulty on transfer of training in target archery. M.S. in Physical Education, 1967. 63 p. (E. A. Gross)
Girls (N=140) in the eleventh grade were randomly assigned to 4 groups: (1) an easy-to-difficult group which practiced shooting 192 arrows at a 10-yard distance followed by same number of arrows at 20 yards; (2) a difficult-to-easy group starting at 50 yards, finishing at 40; (3) a constant group which shot all arrows at 30 yards; and (4) a control group which had no practice. All 4 groups were finally tested by shooting 120 arrows at 30 yards. Archery practice in either the easy-to-difficult direction or in the difficult-to-easy direction did not improve performance at a significant level more than did an equal amount of practice at the test distance.

468. TUCKER, Robert M. Effects of isometric strength development on speed and power of resisted and nonresisted horizontal arm flexion. M.S. in Physical Education, 1967. 142 p. (C. A. Morehouse)
Male students (N=26) were assigned to one of 3 equated groups on the basis of initial strength of horizontal arm flexion. One experimental group

performed 2 isometric contractions with the extended right arm at each of 4 equidistant angles throughout the range of the test movement. A second experimental group performed 8 isometric contractions at the position of initiation (0 degrees) of the movement. A third group served as a control. Strength was measured before and after training at 4 angles within the range of movement. The speeds of the resisted and nonresisted horizontal arm flexion movements were determined utilizing stroboscopic-photographic procedures. Significant strength gains were made at each of the 4 measured angles by each experimental group, but no significant differences existed between these 2 groups.

University of Pittsburgh, Pittsburgh, Pennsylvania (M. A. Sherman)

469. DAVIS, Robert L. The comparative effects of interval training programs on the maximal oxygen intake and oxygen pulse of college men. M.A. in Physical Education, 1967. 59 p. (B. J. Noble)
Three interval-running training routines, each of different intensity, were performed by healthy college men, aged 18 to 21 years, to determine which produced greatest improvements in maximum oxygen intake and oxygen pulse. Training occurred 3 times per week for 6 weeks. Analysis of individual data collected before and after training during work on the bicycle ergometer revealed that training at 40 percent intensity stimulated largest maximum oxygen intake gains; training at 60 percent intensity produced greatest increased in physical work capacity and reductions in oxygen intake and oxygen pulse at submaximal work loads; and training at 80 percent intensity caused greatest reductions in submaximal work heart rate.

470. DeRISO, James A. Assessing the physical working capacity of elementary school children. M.A. in Physical Education, 1967. 43 p. (B. J. Noble)
The rate of work (kpm./min.) on a bicycle ergometer done at a pulse of 170 beats per minute represented physical working capacity. Within the group studied, the physical working capacity of children from Monroeville, Pa., did not increase significantly with age expressed either in kpm./min. or kpm./min. per square meter of body surface area. The experimental sample ranked above a Canadian (Winnipeg) group but lower than groups from California and Sweden although none of the observed mean differences were statistically significant.

471. DuVAL, Harry P. The effects of exercise rate and cardiovascular fitness on the caloric cost of a circuit training program. M.A. in Physical Education, 1967. 62 p. (W. S. Gualtiere)
Caloric cost (kcal./min./kg.) of a selected circuit training program performed at 50 and 75 percent of maximum repetitions per unit of time was calculated for three 18-year-old college men classified by Harvard step test as above average, average and below average in cardiovascular fitness. More energy was required at 75 percent intensity than at 50 percent intensity regardless of cardiovascular fitness level. Energy cost, expressed as kcal./min., increased from the most to least fit individuals at both exercise rates. Differences in caloric cost (kcal./min./kg.) were associated with differences in body weight as well as cardiovascular fitness differences.

472. FORBES, William J. Aerobic capacity of women between the ages of twenty and twenty-nine. M.A. in Physical Education, 1967. 55 p. (W. S. Gualtiere)
A modification of the Taylor treadmill test was adapted for the bicycle ergometer used to determine maximal oxygen intake of 19 women, aged

20 to 29 years. Maximal oxygen intake (L./min.) was significantly associated with body weight (r=.62), fat-free body weight (r=.52). However, when age was correlated with maximal oxygen intake corrected for body weight (ml./min./kg.) and fat-free body weight (ml./min./kg.) and fat-free body weight (ml./min./kg. FFW), respectively, the coefficients were reduced to nonsignificant values of .24 and .06.

473. HAWN, Barbara. The effects of a two-months training program on the aerobic capacity and fat reduction of adult women. M.A. in Physical Education, 1967. 70 p. (B. J. Noble)
Four adult women, aged 32 to 56 years, participated in a training program comprised of calisthenics, jogging and running. The subjects exercised 3 times per week for 8 weeks. An interval training scheme was used where exercise heart rate was elevated to about 150 beats per minute during the work phase and allowed to decrease to about 120 beats per minute during the rest phase. Although statistical evidence supporting significance of changes was lacking, the following adjustments were observed: oxygen intake decreased at submaximal work rates; lean body weight increased; and body fat decreased.

474. ROBERTSON, Robert J. The effects of a swimming interval training program on the cardiorespiratory fitness of male college students. M.A. in Physical Education, 1967. 80 p. (W. S. Gualtiere)
Each of 6 subjects completed 20 training sessions each lasting 35 minutes, for 5 weeks. Eight repeated 50-yard swims were performed each session with rest periods lasting until heart rate lowered to 120 beats per minute. Individual swim speeds were established on the basis of fastest 50-yard time and associated terminal heart rate response. From pre- to post-training, maximal oxygen intake was not significantly altered. Although all subjects improved 250-yard swim time, the mean decrease of 48.6 seconds was statistically insignificant. Performance improvements, therefore, were apparently due to increased skill and independent of oxygen intake changes.

475. SANDERBECK, James A. A comparison of three types of recovery periods on the aerobic capacity and endurance of college men. M.A. in Physical Education, 1967. 48 p. (B. J. Noble)
Training for 3 college men lasted 5-1/3 weeks with rate, repetition and distance of running held constant. Group I recovered between each run until heart rate was lowered to 50 percent of the maximum available heart rate range and Group II recovered to 70 percent of the maximum available heart rate range. The recovery criterion utilized for Group III was a rest period with a 1:2 work-to-rest-time ratio. Maximum oxygen intake and mile-run time, determined before and after training, improved in all groups. However, there were no significant differences among recovery treatments.

476. STALLINGS, Marsha J. The effects of a training program utilizing vision and the exclusion of various visual components on dynamic balance. M.A. in Physical Education, 1967. 83 p. (B. J. Noble)
Ten third grade children were assigned to each of 4 training treatments to determine which produced the most significant improvements in dynamic balance as measured by Seashore's beam walking test. Training programs consisted of 2 30-minute sessions per week for 10 weeks and involved practice on balance beams 1, 2, 3 and 4 inches wide. Group I practiced with vision unimpeded; Group II wore glasses with the central portion darkened to exclude peripheral vision. All 4 groups improved balance on the 1-inch beam. The blindfolded group improved significantly more than groups trained with total vision and with peripheral vision excluded but significantly less than the group trained with central vision

excluded. There were no significant differences among groups trained with central vision, peripheral vision and total vision.

Sacramento State College, Sacramento, California (D. R. Mohr)

477. COLLINS, Gertrude L. A survey of girls' physical education programs in senior high schools with enrollments over two thousand in North-Central California. M.A. in Physical Education, 1967. 63 p. (D. R. Mohr)

Chairmen of girls' physical education departments in 22 large senior high schools in North-Central California responded to a 7-page questionnaire dealing with departmental organization, administration, program content, intramurals and extramurals, and grading. The conclusions reached from the data were: no discernible standards were found for determining staff size, teaching load, class size, or instructional time for specific units; a definite lack of continuity and communication was found between the junior and senior high school girls' physical education departments; the majority of the schools provided elective courses at the eleventh and twelfth grade levels; and the scope and sequence of physical education activities were limited because scheduling was done by period and grade level rather than by skill level, except in aquatics and modern dance.

478. COUSINS, Margaret E. Implications for electronic data processing of school health records. M.A. in Health Education, 1967. 172 p. (A. L. Spillane)

A questionnaire-opinionnaire was sent to 20 San Juan district nurses. Other sources included a content and item analysis of 100 student health records randomly selected from one high school class in the district, fact-finding interviews, and related literature. It was concluded that an automated health records system seemed advisable in the district. Although there was general uniformity of record maintenance within the district, the year-to-year storage of daily records, some dispersal of records, existence of duplication practices, and the time consumed for record upkeep pointed to a needed change in the system. The proposed data processing seemed feasible because an apparently economical and comprehensive computer center was already in operation.

479. COX, Marianne C. Perceptions of elementary teachers regarding their professional preparation for teaching health topics in the elementary school. M.A. in Health Education, 1967. 68 p. (A. L. Spillane)

Data were gathered by reviewing the literature, sending out a questionnaire in the form of a survey list, and from interviews with health educators and other educators in administrative positions. It was found that the elementary teachers in the sample were inadequately prepared to teach 15 selected health topics, and a definite relationship existed between the degree of professional preparation in health education and the actual teaching of health topics in the classroom.

480. ERSTAD, Marjorie H. Skill progress of junior high school girls grouped according to ability as compared to those not so grouped. M.A. in Physical Education, 1967. 112 p. (D. R. Mohr)

The 2 classes, consisting of junior high school girls, were tested before and after each of 4 activity units in speedball, basketball, volleyball, and softball. The differences between means of the progress scores of the two groups were significant at the .05 level in basketball and softball, while those in speedball and volleyball were only chance differences.

481. FISHER, Arnold G. An experimental investigation of the effects of a weight training program on underdeveloped junior high school boys. M.A. in Physical Education, 1966. 53 p. (A. A. Bates)
Eighty-four high school boys were selected by their standing in the class as measured by the California physical performance test; they were paired by initial test scores and assigned at random to either the weight training or the exercise group. They were retested at the conclusion of the 10-week experimental period. The weight training program was more effective in developing physical performance in the activities requiring large muscle strength such as softball throw for distance, pull-ups, and standing broad jump. It was less effective in developing performance in those activities requiring circulorespiratory endurance or speed. Although a greater total increase occurred in the physical performance of the experimental group, the weight training program was not significantly better than the exercise program in developing total physical fitness.

482. GHILARDI, Larry N. The history of the adaptive physical education program at Sacramento Senior High School. M.A. in Physical Education, 1967. 80 p. (H. H. Wolf)
Information was obtained by interviewing people who were involved in the initial phases of the adaptive program. It was found that lack of equipment and facilities may have hindered or discouraged the instructors from developing a quality program to meet the needs of all students. Nonetheless, the initial phases of establishing a program have been completed. Program changes, however, have occurred only as each individual instructor has brought his own personal contributions. Recommendations for the future were identified in the study.

483. GRABLE, Melvin G. An annotated bibliography and critical analysis of published articles on baseball. M.A. in Physical Education, 1967. 179 p. (H. H. Wolf)
The purpose of this study was to compile and critically analyze a bibliography of baseball articles written between January 1946 and June 1964 in the Athletic Journal, Scholastic Coach, Journal of Health, Physical Education and Recreation, and the Research Quarterly. The Athletic Journal and Scholastic Coach were found to have the greatest number of articles on baseball and a wider coverage of aspects of the sport, while the articles in JOHPER were found to be concentrated in the areas of baseball adaptations and organizational planning. The Research Quarterly articles pertained to research on statistics and measurements in baseball. With few exceptions, most of the 420 articles were of technical value in coaching, teaching or professional training. It was felt that there is a definite need for writing on certain aspects of baseball not covered in the articles found for this study.

484. KAWAHATA, Harry M. The development of a manual for coaching the high school baseball catcher. M.A. in Physical Education, 1967. 137 p. (A. A. Bates)
Questionnaires were received from 24 selected major league catchers and 20 college baseball coaches. It was found that there are many skills which an outstanding defensive catcher should be able to execute in order to be of value to his team. In most cases, there was more than one correct way to execute a particular skill; therefore, the manual described the different techniques for each skill.

485. LEAVITT, Gordon F. A philosophical study of interscholastic football in the area of Sacramento, California. M.A. in Physical Education, 1967. 153 p. (H. H. Wolf)
Following a survey of the literature, a questionnaire was constructed,

encompassing values of high school football. This was answered by members of 5 school varsity teams in the area, the Optimist County All-Star team of 1966, and 63 coaches. The writer concluded that participants do derive positive values from their experiences in interscholastic football. He was unable, however, to relate individual values to specific philosophies. Eclecticism was concluded to be the predominant philosophy.

486. MARKOVICH, Theresa C. An appraisal of health knowledge of Sierra College students enrolled in health education classes for the school year 1965-66. M.A. in Health Education, 1967. 135 p. (F. B. Benell)
The Dearborn College health test was given at the beginning and the end of the health education course and comparisons were made with the test results of California junior college students. The conclusions were as follows: college students recognized their ignorance in some areas of personal health information but clung to much misinformation in other areas; information concerning health knowledge of students could be obtained through the use of a test instrument; and statistically, Sierra College students did not seem to exhibit marked differences from other California junior college students, as measured by the Dearborn College health knowledge test.

487. MILLER, Max F. The Irving F. "Crip" Toomey Story. M.A. in Physical Education, 1967. 77 p. (H. H. Wolf)
The primary purpose of this study was to pay tribute to Irving Francis "Crip" Toomey, one of the greatest figures in the world of sports and athletics. Throughout the study, the author revealed Toomey's full life in relation to various achievements. "Crip" was a person whose life exemplified the high standards which should be associated with athletics. The author revealed some of the practices which make "Crip" a great athlete, a great coach, and a great human being.

488. MUENCH, Marlene Poletti. A survey of the activity preferences of sophomore junior college students in California. M.A. in Physical Education, 1967. 103 p. (D. R. Mohr)
Research data were procured from various periodical sources and the responses by sophomore women students to a questionnaire developed by the investigator. Of the 16 conclusions reached from the results of the study, the following are considered the most significant: California junior colleges showed marked liberality in their physical education requirements, allowing the fitness status and physical skills of women students to be largely self-determined; the substitution of extraneous activities for instructional physical education was prevalent; more individual and dual activities were elected within the requirement than were taken as specific requirements; individual and dual activities far exceeded team sports in terms of courses students wished they could have taken; and activities least preferred were those in which students failed to demonstrate adequate skill.

489. NAGLE, Bernard E. A study of the relationship between participation in extracurricular activities and juvenile delinquency in selected intermediate schools of the San Juan Unified School District. M.A. in Physical Education, 1967. 78 p. (F. B. Jones)
Data for the study were obtained from students' participation records; interviews with the principals, vice-principals, counselors, and activities directors of the selected schools; and interviews with Sacramento County Juvenile Probation Officers and the Director of Physical Education and Recreation for the San Juan Unified School District. The data indicated little participation of juvenile offenders in the extracurricular programs of the schools. The loosely organized teen canteen programs

attracted the most participants. It may be concluded that, for these subjects, the existence of the extracurricular program had little or nothing to do with curbing delinquency among students in the selected schools.

490. PISTOCHINI, Gordon A. A comparison of reaction time, movement time and lever length. M.A. in Physical Education, 1967. 54 p. (F. B. Jones)

Physical measurements were taken of sophomore high school boys, and reaction and movement times were recorded by the Dekan performance analyzer. It was found that the reaction time and movement time were dependent on lever length. The reaction and movement times were also dependent on total height.

491. SKUBE, John E. Development of a manual for programing off-season strength development for interscholastic football players. M.A. in Physical Education, 1967. 184 p. (F. B. Jones)

The research involved a study of texts, pamphlets and periodicals concerned with strength development of athletes. Also, a questionnaire was sent to high school football coaches in the San Joaquin area to discover the nature of existing programs of strength development used for football players in the off-season. The manual was then developed. From the review of the literature and the responses of the coaches, it would appear that there was a lack of knowledge concerning the organization and conduction of an off-season strength development program for high school football players.

492. STORK, Brenda Ann. A comparison of the changes in physical performance and ball-handling skills of girls in basketball and fitness classes. M.A. in Physical Education, 1967. 96 p. (D. R. Mohr)

One class of seventh grade girls experienced a 4-week unit of continuous progressive exercise while the other class engaged in a 4-week basketball unit. Both classes completed a battery of 9 tests, which involved physical performance and ball-handling skills, at the beginning of the study and at the end. Means, standard deviations, F tests and t tests were computed on each test item of Test I and Test II and on the improvement scores. The data seemed to indicate that some aspects of physical performance and some ball-handling skills could be improved upon in a fitness-centered unit which employed no balls in the lessons. The basketball unit seemed to contribute to maintaining physical performance levels, but made no apparent contribution to improving them significantly; it also seemed to contribute to significant improvement in ball-handling skills.

493. VALLADAO, Eva B In-service needs for health instruction in the schools of Solano County. M.A. in Health Education, 1967. 79 p. (F. B. Jones)

The sources of data were questionnaires received from kindergarten through eighth grade teachers from 6 elementary schools and 7 rural schools in Solano County. The data were compiled on the basis of total response, grade level taught, and years of teaching experience. The conclusions were as follows: health instruction programs including teacher preparation, health texts, and instructional materials need to be improved and strengthened; to be effective, the in-service education programs should be offered in the local district, should carry college credit, and should be organized as workshops, extension courses, or institutes; in-service education programs in health, organized by subject matter and geared to grade level, are considered important by elementary teachers; and teachers in Solano County need additional preparation in all health content areas except safety.

San Diego State College, San Diego, California (F. P. Cullen)

494. DeWOSKIN, Sheila F. Somatotypes of women in a fitness program. M. A. in Physical Education, 1967. 75 p. (J. E. L. Carter)
Women subjects enrolled in a voluntary fitness program were measured and their phenotypes were assessed by the Parnell M-4 deviation chart method. The data were then transferred to the Heath-Carter somatotype rating forms and anthropometric somatotypes were assigned. The means, standard deviations, and ranges were computed for age, height, weight, height-weight ration, total skinfolds, and the three somatotype components for both rating methods. The following conclusions were drawn: the somatotypes of women in a voluntary fitness program differed from somatotypes of women in the reference population. The hypothesis that the use of Parnell's M-4 method and the Heath-Carter method would result in different somatotype ratings was supported.

495. LARSEN, Robert E. Multi-daily workouts for distance running. M. A. in Physical Education, 1967. 62 p. (P. Governali)
High school distance runners (N=25) between the ages of 14 and 17, served as subjects. Two groups were formed: The control trained only in the afternoon while the experimental had the same workout in the afternoon, and in addition ran 3 miles in the morning 3 days a week. The results of the Harvard step test showed that both the control and the experimental groups improved their cardiovascular fitness, but the control group improved more than the experimental group. The results of the 1320-yard run indicated that the difference in improvement between the two groups was not significant.

496. LIBBY, Marilla A. Cigarette smoking as a related factor in bronchitis and emphysema. M. A. in Health Education, 1967. 91 p. (P. Governali)
Review of current literature brought out the following conclusions: cigarette smoking has been proved to the satisfaction of most authorities to be a definite health hazard, increasing the risk of dying from pulmonary emphysema; the incidence of emphysema and chronic bronchitis is on the rise in the United States and other countries also; exemplars, by their own smoking habits, do influence the smoker; advertising media have violated their own voluntary programing code; and certain modified rehabilitation clinics can aid some patients in the initial stages of the disease. One of the most significant conclusions to be drawn from this study is that knowledge of the hazards of cigarette smoking does not necessarily effect a change in smoking patterns.

497. LUSKY, Robert F. Developing collateral skills of baseball pitchers. M. A. in Physical Education, 1967. 88 p. (P. Governali)
A questionnaire concerning 8 collateral pitching skills was administered to 20 high school baseball coaches in San Diego County and personal interviews were conducted with professional coaches and players. High school coaches identified these collateral pitching skills in order of importance: fielding the position; holding runners on base; covering first base; executing pick-off plays; backing up bases; "defensing" the squeeze play; executing run-down plays; and covering the wild pitch or passed ball.

498. McBRIDE, Evalyn W. A study of the influences on smoking behavior of elementary school students. M. A. in Health Education, 1967. 113 p. (A. C. McTaggart)
It was revealed that 15 percent of the group were smoking on a regular basis: approximately 60 percent boys and 40 percent girls. More boys

than girls smoked in fifth grade, but by seventh grade the division was almost equal. There were twice as many smokers in the high socioeconomic areas as in the low income areas. There was no appreciable percentage correlation between parents who smoked and student smokers or nonsmokers.

499. McLURE, Carolyn C. The physiques of professional and amateur women golfers. M. A. in Physical Education, 1967. 74 p. (J. E. L. Carter)
Twenty-six professional golfers and 26 amateur golfers from San Diego County were somatotyped by Parnell's M-4 deviation chart technique. Anthropometric measurements were taken on height, weight, 3 skinfold values at the triceps, subscapular and suprailiac, two bone diameters at the femur and humerus, and 2 muscle girths at the biceps and calf. Analysis showed that the professional golfers' physiques were not significantly different from the amateurs' physiques in height, weight, fat muscularity, or linearity. Significant differences were found between the two groups on total skinfolds, age and the height-weight ratio. Since there did not appear to be a dominant physique between the groups, the null hypothesis between the physiques of professional and amateur women golfers was retained.

500. PANAWEK, Patricia R. A follow-up study of graduates with a major concentration in health education from San Diego State College. M. A. in Health Education, 1967. 84 p. (L. A. Harper)
Questionnaires were sent to 109 graduates who held either a bachelor's or master's degree, or both, in health education from San Diego State College. Seventy-three or 67 percent of the completed questionnaires were returned. The results of this survey revealed that 65 respondents or 88.9 percent indicated they were employed in their major field of preparation; 65 respondents or 88.9 percent indicated they held positions in some type of health work at the present time; and to secure the present positions held, nine different types of preparation were needed by the individual respondents in varying degrees and combinations, other than the bachelor's or master's degree in health education.

501. SCHERFF, Richard W. A nationwide survey to determine legislative trends regarding physical education requirements for grades nine through twelve. M. A., 1967. 55 p. (R. Andrus)
Physical education requirements, for grades 9-12 in the public schools in each of the 50 states, were compared according to geographic location of the state, population of the state, total time requirements for the grades, and what, if any, related fields counted toward the physical education requirement. Questionnaires were sent to presidents of the state associations of the AAHPER and the state directors of physical education. There was no trend in the direction of reduced time requirements for physical education shown by the results of this study. The states with the largest population all required 4 years of physical education with the exception of Michigan which had an optional requirement.

502. TURPIN, Alleene L. The effects of the frequency of running on speed in junior high school girls. M. A. in Physical Education, 1967. 62 p. (R. Andrus)
Three seventh grade and 3 eighth grade classes were pretested on the 50-yard dash and on the 600-yard run-walk. Two classes from each grade level ran once a week, 2 ran 3 times a week, and 2 classes ran 5 times a week. All 6 classes were then retested after 8 weeks. It was concluded that the same benefits could be gained from running 600 yards once or 3 times a week as could be gained by running daily. Since there were no significant differences between groups on their 50-yard dash

tests, it was assumed that the frequency of running 600 yards had no effect on sprint speed as measured by the 50-yard dash.

503. WESTLAKE, Doris J. Somatotypes of female track and field competitors. M. A. in Physical Education, 1967. 77 p. (J. E. L. Carter)
The age, height, weight, skinfolds, limb girths and diameters of girls and women competing in track and field events were measured and their somatotypes were assessed by the Heath-Carter somatotype rating form. The following are some of the findings. The somatotypes of the sample fall predominantly into categories dominated by either or both mesomorphy and ectomorphy. A significant difference was indicated between events on each of the variables with the exception of age. The distance runners were shorter than the sprinters, jumpers, and throwers and less ectomorphic than the jumpers. The throwers were heavier, more endomorphic, more mesomorphic, and less ectomorphic than the other three subgroups. The data in this study supported the hypothesis that female track and field competitors differed between event groupings in terms of somatotype.

San Jose State College, San Jose, California (W. F. Gustafson)

504. BROWN, Randall G. The development and design of the golf ball and clubs and their influences on the game. M. A. in Physical Education, 1967. 150 p. (W. J. McPherson)
Included in this comprehensive historical study in the area of golf equipment is a discussion of the origin of the modern game, the history of the golf ball and clubs in Great Britain and the United States, and the evolution of the design of the golf ball and clubs and their influences on the game. A wide variety of photographs exemplify the changes that have taken place.

505. BROWN, Robert Frank. Modern day javelin technique. M. S. in Physical Education, 1967. 60 p. (J. Menendez)

506. FISHBACK, Jeffery M. Equations for predicting performance in the one-mile and two-mile runs from brachial pulse wave components. M. A. in Physical Education, 1967. 88 p. (J. S. Bosco)
Sixteen measurements were made on the pulse wave of 16 distance runners and each was correlated with run-time. The 5 most significant measurements were included in regression equations for each distance. Systolic amplitude and diastolic surge were important at both distances. Measures of vertical deflection were more important at the 1-mile distance while horizontal deflections were more important at the 2-mile distance.

507. LAMBERT, Arthur Fordham. Instructor's handbook for water polo. M. A. in Physical Education, 1967. 91 p. (C. L. Walker)
The guide is fundamental in content and basic in approach for the beginning coach initiating the game at his school. A section on fundamental techniques is accompanied by a color film depicting these skills. Sections on team offense and defense are discussed and diagrammatically illustrated.

508. SICKELS, William Loyd. A rating test of amateur wrestling ability. M. S. in Physical Education, 1967. 38 p. (C. W. Jennett)
A rating test of amateur wrestling ability was formulated and its objectivity and validity determined. Each subject was ranked, within his weight class, according to his test score and according to the place he

earned in the league tournament. Coefficient of correlation between the two rankings was + 0.84 (p=.01).

509. THOMAS, Lowell. A normative and comparative study of maximum isometric strength in Negroid and Caucasian Job Corps candidates. M.A. in Physical Education, 1967. 50 p. (J. S. Bosco)
Job Corps candidates (N=150) were divided into two groups: Group one included those 16-18 years of age and group two included those 19-21 years of age. Each group was subdivided into Negro and Caucasian so that a comparison of strength could be made between and within races. Six strength measures were used. When comparing Caucasians, no statistically significant strength differences were found between age groups. A statistically significant difference in favor of Negroes was found in right shoulder extension in the 16-18 group. When comparing Negroes with Negroes, a statistically significant different was found in right knee extension and in right ankle plantar flexion in favor of the 16-18 group. Norms for all groups are included.

510. UCHIDA, George S. The external mechanics of eight judo throws. M.A. in Physical Education, 1967. 78 p. (W. F. Gustafson)
Eight judo throws, selected on the basis of frequency of success by competitors in national and international meets, were filmed and analyzed. Four competitors of national championship caliber attempted, in actual competition to execute 2 different throws each against black belt opponents. The analysis was divided into 2 columns. The left-hand column described the step-by-step action and the right-hand column included a short description of the mechanical principle with an explanation of how and why the principle was applied. A comparison was made between the analyses and testbook descriptions of the 8 throws.

Smith College, Northampton, Massachusetts (E. E. Way)

511. ARTUS, Martha A. A comparative study of the mechanics of a parallel skiing turn downhill between two different angles of slopes through cinematographical analysis. M.S. in Physical Education, 1967. 65 p. (E. E. Way)
Five Natur Teknik ski instructors were filmed executing 6 parallel skiing turns on a low slope and 6 on a steep slope. Presented are graphically plotted data related to ski angulation, velocity, center of gravity, body angulation, shoulder and hip angulation to the spine, shoulder and hip angulation to the fall line, and body segment flexion and extension patterns. Center of gravity shift was forward on the steep slope and back on the low grade slope. Hip and shoulder angulations were negative on the low grade slope and positive on the steep slope.

512. BONGARD, Barbara R. The relationship between estimation and confidence in the performance of specific motor skills. M.S. in Physical Education, 1967. 83 p. (E. E. Way)
Thirty college women were given 2 tests varying in familiarity and difficulty for each factor: balance, power, accuracy, flexibility, and agility. Estimation and the confidence in this estimation were ascertained before each test. There is a slight but significant relationship between estimation and confidence. Those subjects who were sure of their estimates are likely to estimate accurately.

513. CRANSTON, Virginia Agnes. A study of the relationship of reaction time, movement time, and visual tracking to performance in badminton. M.S. in Physical Education, 1967. 56 p. (E. E. Way)
A reaction time-movement time device, a pursuit rotor, and the Miller

badminton wall volley test were used to collect the data on 32 college women enrolled in badminton classes at Smith College. Reaction time, movement time and visual tracking had no apparent relationship to performance in badminton.

514. DAVIS, Patricia. An investigation of the status of postural patterns of Smith College women. M.S. in Physical Education, 1967. 96 p. (E. E. Way)
The study is an analysis of 750 physical examination record cards from 5 selected years. Postural patterns have changed over the years. Significant differences between the percents of occurrence were found for many factors. The most widespread postural deviations still include forward head, forward shoulders, protruding abdomen, pelvic tilt, and pronated feet. Nearly all types of scoliosis decreased significantly over the years studied.

515. HURST, Margot E. The effects of intensity, frequency, and direction of auditory stimuli on reaction time, movement time and completion time. M.S. in Physical Education, 1967. 83 p. (E. E. Way)
Although there have been other studies of this problem, few have had such precise specifications. In the first part of the experiment the effects of 3 frequencies and 4 intensities were studied. In the second part, subjects responded to sound from 8 directions. All 3 responses decreased in time as the intensity increased. This was also true of frequency at the lower intensities but not at the highest. Sounds from the sides and the back diagonals elicited the fastest responses.

516. MUND, Geraldine. A study of the relationships of visual perception, various types of reaction time, and rotary pursuit. M.S. in Physical Education, 1967. (E. E. Way)
Thirty subjects were given a tachistoscopic test of visual perception, tests of simple and choice reaction time, a test of transit time, and a test of hand-eye tracking ability. Significant relationships were found between rotary pursuit and transit time and between simple and choice reaction time. Transit time does not appear to be related to the other forms of reaction time. Perceptual speed is unrelated to the other factors.

517. SHEYA, Judy Ann. The relationship of personality variables to choice of physical education activity. M.S. in Physical Education, 1967. 67 p. (E. E. Way)
The EPPS and an activity inventory were given to 100 high school girls. Subjects were grouped according to the type of activity which was the first choice: aquatics, dance, individual sports, team sports. The EPPS mean scores of the Northampton group were compared to Edwards normative group and found to be significantly different in 8 of the 15 variables. Those subjects with the highest scores in achievement, deference, affiliation, and change and with the lowest scores in intraception and endurance chose dance as a first choice activity.

518. VIGUERS, Doris Kimball. An investigation of the relationship of tracking ability to skill in aerial games. M.S. in Physical Education, 1967. 47 p. (E. E. Way)
Studied were 105 women recommended by instructors as highly skilled or poorly skilled in one of the following sports: badminton, basketball, tennis, or volleyball. The rotart pursuit test was given. The test did differentiate between highly skilled and poorly skilled players in aerial games. The test did not differentiate between highly skilled hand contact sport players and racket sports players nor between poorly skilled hand contact and racket sport players.

South Dakota State University, Brookings, South Dakota
(G. E. Robinson)

519. BOESPFLUG, Leroy R. The relationships between physical fitness, social acceptability, social adjustment, intelligence, and academic achievement of junior high school boys. M. S. in Physical Education, 1967. 79 p. (G. E. Robinson)

Physical fitness of 50 track-experienced subjects was measured by the AAHPER youth fitness test. Social acceptability was assessed by the Cowell personal distance ballot, social adjustment was based on results of the Cowell social behavior trend index, intelligence was assessed by the Hermon-Nelson test of mental ability, and academic achievement was represented by grade point average. Those subjects that obtained high physical fitness scores appeared more socially accepted, more socially adjusted, and also had better academic achievement than those subjects with low physical fitness scores.

520. DEKOK, Dean E. The effects of a specific resistance program and a weight training program upon strength involved in and speed of a specific motor movement of the discus throw. M. S. in Physical Education, 1967. 52 p. (G. E. Robinson)

Freshmen nonathletes (N=30) were randomly designated into 3 groups on the basis of arm strength test scores: an experimental group with weight training, an experimental group with specific resistance (Exer-Genie), and a control group. The training period was for 6 weeks with pre- and post-tests administered. Strength of angular horizontal abduction-flexion arm movement, strength of combined leg extension and hip movement, and speed of a specific motor movement of discus throwing were investigated. Application of the analysis of variance and Duncan's new multiple range test to the data indicated that the specific resistance training program was more effective than weight training in developing strength. Neither program appeared to be effective in increasing a specific motor movement of the discus throw (speed).

521. DVORAK, Sandra E. A subjective evaluation of fundamental locomotor movement in modern dance using a five-point rating scale. M. S. in Physical Education, 1967. 84 p. (G. Crabbs)

Part I of the final test was for beginners, consisted of 6 items, and was given to 19 students in modern dance; Part II, consisting of 10 items, was given to 17 intermediate to advanced students. The following conclusions are warranted: Part I of the fundamental locomotor skills test can be used in testing dance proficiency for beginners in modern dance locomotor movement at South Dakota State University. A significant correlation of . 54 was obtained. Part II of the skills test can be used in testing dance proficiency for intermediate to advanced students in modern dance locomotor movement. A significant correlation of . 89 was obtained.

522. FISK, Timothy B. Development of basketball shooting accuracy as affected by varying goal sizes. M. S. in Physical Education, 1967. 35 p. (G. E. Robinson)

Male freshmen students (N=37) were randomly divided into 3 experimental groups and a control group. The groups participated in a 5-week training program where they shot 55 baskets each training day, using the one-hand set shot, at either an accuracy rim, a regulation basket, or a combination of the regulation basket and accuracy rim. The results of the findings indicated that there was no significant difference in shooting accuracy between groups. Within the groups only the standard goal-accuracy rim group showed a significant improvement (. 01 level) from pretest to post-test.

523. HAMAK, Merl A. The effect of a selected progressive resistance running program on circulo-respiratory efficiency, power and free running speed. M.S. in Physical Education, 1967. 65 p. (G. E. Robinson)

Male subjects (N=45) were divided into 3 equated groups: interval running, resistance running (employing an Exer-Genie), and control. The effects of a 6-week training program were determined by a pretest, initial post-test, and final post-test for oxygen debt repaid, power developed by the legs, free running speed, and elapsed time for a 600-yard run. Significant improvement was found in oxygen debt repaid (.05 level) and elapsed time for a 600-yard run (.01 level) between the interval and control group.

524. HOSETH, Paul E. The effectiveness of an isometric-isotonic and isotonic-isometric exercise program upon selected measures of upper body strength, muscular endurance, and resting heart rate. M.S. in Physical Education, 1967. 38 p. (G. E. Robinson)

One experimental group completed isometric exercises followed immediately by isotonic exercises, while the other experimental group completed isotonic exercises followed immediately by isometric exercises. The control group followed normal daily activity. Application of analysis of variance technique indicated that isometric-isotonic or isotonic-isometric weight training programs increase muscular strength and muscular endurance similarly; and that resting heart rate is unaffected.

525. KOSTER, Dean E. The effects of a selected resistance training program on the improvement of arm throwing strength and on selected items of the football passing performance. M.S. in Physical Education, 1967. 52 p. (R. A. Ginn)

Twelve football players with passing experience in high school or college were selected as subjects from the freshman and varsity football teams of South Dakota State University. The subjects threw 100 passes daily, with one of 2 groups exercising on the Exer-Genie. Both groups significantly improved throwing arm strength and passing accuracy. The Exer-Genie group made a significant gain in throwing distance.

526. LARSON, Vicky L. The effect of a progressive weight training program on arm and leg strength, resting heart rate, body adipose tissue, and selected body measurements of college freshman women M.S. in Physical Education, 1967. 75 p. (G. E. Robinson)

An experimental group of college freshman women participated in a progressive weight training program over a 7-week period. Initial and final tests were administered to the group and a control group. Both groups increased in strength development; however, the exercises used in the weight training program employed in this study did not produce a significant increase of strength in right or left elbow flexion, right or left elbow extension, left knee flexion, and right or left knee extension of the experimental group over the control group. There was a significant increase in right knee flexion at the .05 level. There was a significant loss of adipose tissue on the cheek, chest, arm, back, hip, and abdomen of the experimental group.

527. LINANDER, Terry J. Effects of continuous running as compared to interval running on cardio-respiratory efficiency of conditioned freshman wrestlers at South Dakota State University. M.S. in Physical Education, 1967. 47 p. (G. E. Robinson)

Eighteen members of the freshman wrestling squad were equated into 3 groups using the results of a cardio-respiratory efficiency test. The groups were randomly designated as the interval running group (IR), continuous running group (CR), and the control group. Oxygen consumption, pulse rate at rest and in recovery, calculated from a treadmill run, were used as criteria to determine cardio-respiratory efficiency of subjects at the beginning, mid-point, and the completion of the training program. It was concluded that a running program in addition to wrestling practice does not appear to increase the cardio-respiratory efficiency of conditioned wrestlers.

528. MCKEOWN, Barry C. The effect of physical, mental-physical, and mental practice on the learning of the modified triple jump. M. S. in Physical Education, 1967. 53 p. (G. E. Robinson)
Freshman men (N=36) were equated into 3 experimental groups by their ability to perform the long jump and were randomly designated as the physical practice, the mental-physical and the mental groups. Application of the analysis of variance and Duncan's new multiple-range test to the data indicated a statistically significant difference between the physical and the mental groups at the .01 level and no significant difference between the mental-physical and the physical practice groups. Significant gains were found within the three groups.

529. NEWMAN, Richard E. A comparison of the anxiety measures and match performance evaluations of high school wrestlers. M. S. in Physical Education, 1967. 53 p. (G. E. Robinson)
The subjects were 31 varsity wrestlers who were in attendance at Brookings High School, Brookings, South Dakota. The top 24 wrestlers, as determined by weekly competitive challenge matches, received alternate forms of the IPAT 8-parallel-form anxiety battery forty minutes prior to the A and B teams' competitive performances in all home wrestling matches. Each subject's performance was independently evaluated immediately upon termination of his match by a panel of three wrestling judges. There was no relationship between anxiety measures and match performance evaluations.

530. SCHLEKEWAY, Ronald J. The effect of interval running on leg strength and circulo-respiratory efficiency. M. S. in Physical Education, 1967. 30 p. (G. E. Robinson)
An experimental group of high school boys ran at three-fourths maximum running speed in water with a depth half way between the patella and the crest of the ilium for a period of 23 training sessions, while the control group carried on normal activity. Subjects were given initial and final tests on oxygen consumption, hip flexion, hip extension, knee extension, and resting pulse rates. Statistical analysis indicated the methods of training in water used in this experiment improved hip flexion strength, knee extension strength, and lowered resting pulse rates.

531. STAMP, Nona M. The effect of an interval running program on circulo-respiratory efficiency, body adipose tissue, and body weight of college freshman women. M. S. in Physical Education, 1967. 51 p. (G. E. Robinson)
Subjects (N=30) were randomly selected from a group of freshman women enrolled in the basic instruction physical education program. An experimental group participated in an interval running program over a 6-week period. The work load consisted of running bouts on a graded treadmill with a specific interval rest period. Statistical analysis of data collected (between groups) indicated that interval running is an effective method of increasing circulo-respiratory efficiency for women and in the lowering of heart rate. No significant effect on body weight was found. There was significant loss of adipose tissue for the experimental running group subjects in 3 of the areas measured.

532. WERTICH, Harold G., Jr. *The velocity of the baseball batting swing as affected by the addition of a selected resistance exercise to a traditional pre-season weight training program.* M.S. in Physical Education, 1967. 33 p. (G. E. Robinson)
Thirty freshman baseball candidates at South Dakota State University were selected as subjects and were placed in 2 randomly designated groups equated by the measure of the velocity of the baseball batting swing. The 2 groups (traditional weight training group and resistance training with Exer-Genie group) participated in a 6-week training program. It was found that either a traditional weight training program or a similar program with the addition of one specific resistance exercise will increase the velocity of the baseball batting swing; that neither method seems to be significantly better than the other; and that swinging a weighted bat immediately prior to batting does not significantly affect the velocity of the baseball batting swing.

University of Southern California, Los Angeles, California

(H. A. DeVries)

533. ALLEN, Dorothy J. *Concepts derived from observed movement patterns represented in visual forms.* Ph. D. in Physical Education, 1968. 178 p. (A. L. Lockhart)
The visual forms were black and white transparencies of 10 sport and gymnastic movements which were produced by two time photography techniques: stroboscopic lighting and continuous stage lighting. By a method of free association, 107 women college students were asked to respond to the transparencies by writing the concepts suggested by them. It was concluded that movement patterns have meaning in addition to that of the movement performance itself, but this meaning varies greatly among individuals. Such meaning can be expressed, described and interpreted within groups of concepts on the denotational and connotational levels of meaning. The nature of the visual forms and the order of their observation does not significantly affect the nature of the responses which may be associated with the movement patterns.

534. AMSDEN, Katherine. *The effect of practice on individual differences in the performance of a motor task.* Ph. D. in Physical Education, 1967. 142 p. (A. S. Lockhart)
A group of 27 college women served as volunteer subjects and each practiced on a Koerth-type pursuit rotor for 10 days. The single trial reliability coefficient ($R= S_T{}^2/S_x{}^2$), was used as the measure of individual differences. An analysis of the data revealed that inter-individual and intra-individual variance increased significantly on the first day. During the last 6 days of practice when the improvement in performance was relatively small there was a significant change in inter-individual variance during 3 of the days, and significant decrease in intra-individual variance during only 2 days. There was no individual variance in the individual variability scores during the last 6 days of practice.

535. CRISSELL, Toni Ann. *A normative study of the progressive pulse rate test in high school girls.* M.S. in Education, 1967. 30 p. (K. C. Lersten)

536. FERDUN, Edrie M. *An exploratory study of the relationship between visual representation and initial performance of selected movement sequences.* 1967. (L. Ellfeldt)
College women (N=23) were asked to view filmed demonstrations of 4 movement sequences and then to represent them by arranging jointed styrofoam models in sequential positions. Visual representations were

recorded by tracing the outlines of the arranged models on paper; performance trials were filmed. These data were evaluated and scored with reference to their conformity to the critical phases of the movement sequences as demonstrated, and in terms of the errors and omissions evidenced. Scores reflecting a subject's ability to represent and to perform were correlated significantly at the .01 level.

537. GALLARDO, Diana Maria. The dance creation. M.A. in Dance, 1967. 75 p. (L. E. Ellfeldt)

538. HART, Mabel M. An analysis of the content of selected sport magazines, 1889-1965. Ph.D. in Physical Education, 1967. 180 p. (E. Metheny)

The problem was pursued by an analysis of content of 3 sport magazines; Outing, 1889-1921, Sportsman, 1927-1937, and Sports Illustrated, 1955-1965. The literature of social history and sociology of sport was consulted for information pertinent to social patterns, participation in sport, and expenditure on sport for the time under study. It was concluded that patterns of interest in sport do differ from one time period to another within a given country, and that these changes in pattern are related to other culturally defined changes occurring within the country.

539. HILEMAN, Betty J. Emerging patterns of thought in physical education in the United States: 1956-66. Ph.D. in Physical Education, 1967. 250 p. (E. Metheny)

Prevailing concepts in two 5-year periods, 1956-61, 1961-66, were categorized and the differences between the conceptual emphases were described in terms of 5 general patterns of thought. The first pattern focuses attention on development of a professional position that is humanistically oriented. The second pattern of thought developes from 3 different theories related to the role of movement in establishing theoretical foundations for the profession: movement education, the art and science of movement, and the significance and meaning of movement. The third and fourth patterns are related to development of scientifically oriented, and humanistically oriented concepts of research. The fifth pattern is related to the concept of sport as an element of the culture.

540. HOFF, Phyllis Anne. The quantification of selected aspects of kinesthesis. Ph.D. in Physical Education, 1967. 279 p. (A. S. Lockhart)

The purpose of the study was two-fold: to investigate the acuity of judgment of subjects in 5 aspects of kinesthesis (thickness by finger span, extent of arm movement, heaviness of lifted weights, force by handgrip, and speed of arm movement); and to compare the judgments made in these aspects of kinesthesis. Each of 50 male subjects were tested individually and were blindfolded during the testing procedure. The subject's specific task was the same throughout the experiment: halving the magnitude of each stimulus. The final step in analysis of the data was the derivation of expressions of psychophysical magnitude. If one takes the point of view that the most accurate sense is that which provides a sensory scale with a linear relation to the physical scale, then thickness would be judged as the most accurate of the 5 aspects.

541. HULT, Joan S. Relationships among selected levels of attainment of physical education teachers and students. 1967. 297 p. (A. Lockhart)

The subjects were 52 women physical education teachers in Minnesota and over 4,000 junior high school students. The teachers and students took skill and knowledge tests in basketball. Factors studied included the relationship of the teacher's over-all college grade point average, her interest, emphasis, and extent of competitive experience in basketball to her students' attainment. To be an effective physical education teacher of younger junior high school girls the teacher appears to need to have attained at least average levels of skill and knowledge. Higher level of achievement, as indicated by competitive experience, appears to be a desirable prerequisite for teaching students beyond the beginning stage of learning.

542. JOHANSON, Alva Judith. Factors related to career choice by women physical education majors and implications for early recruitment. Ph. D. in Physical Education, 1967. (L. C. Smith)

543. LAUTAMATTI, Irja-Leena. Orientation for contemporary dance education in Finland. M. A. in Physical Education, 1966. 77 p. (L. E. Ellfeldt)

544. LAWSON, Patricia A. The effect of participation in a girls inter-university athletic program upon selected physiological variables. Ph. D. in Physical Education, 1967. 183 p. (H. A. deVries)
Members of the University of Saskatchewan girls' basketball team and a control group were tested before and after the training season. The testing device used was the treadmill. Tests were applied at rest, the third minute of exercise, the sixth minute of exercise, and terminal minute of exercise. The previously documented direction of change in physiological variables (increase or decrease) effected by training, appeared to be reflected by the basketball group in the following variables: performance time, heart rate, oxygen consumption, and the ratio of tidal volume/vital capacity. The variables which did not change in the direction expected on the basis of previous investigations were: respiratory frequency, minute volume, ventilation equivalent, and oxygen pulse.

545. LE COMPTE, Mary Lou Anselin. The history of physical education in Texas: An analysis of the role of David K. Brace. Ph. D. in Physical Education, 1967. 236 p. (E. Metheny)
Physical education programs began in Texas schools in the late 1880's and statewide interest was aroused in the 1920's when several organizations began seeking a state physical education law. Brace came to Texas in 1926 and assumed leadership of the legislative endeavor. He advocated an instructional program of sports, games, rhythmics and tumbling, organized into progressive units and evaluated according to scientific standards, with athletics as a subsidiary of physical education. Brace was responsible for statewide policies regarding physical education and must be considered a prime mover in establishing physical education in the curriculum of the Texas public schools.

546. McHARGUE, Patrick Henry. The relationships between nine selected variables affecting the United States Air Force Academy Class of 1968. M. A. in Physical Education, 1967. 84 p. (K. C. Lersten)

547. OTEYZA, Merla Natividad. Recreational needs and interests of children in selected public elementary schools in Manila. M. A. in Recreation, 1967. 104 p. (J. T. Hall)

548. PERRY, Richard H. An investigation of policies pertaining to hiring and teaching assignments of coaches of interscholastic athletic teams in Southern California secondary schools. Ph. D. in Physical Education, 1967. 161 p. (J. T. Hall)
Fifty percent, or 160, of the principals in the 321 secondary schools of

the Southern Section California Interscholastic Federation, selected at random received an "existing policies" questionnaire, and the other 50 percent, (161) principals, received a "recommended policies" questionnaire. Of the 321 institutions, 50 percent, or 161, were randomly selected to comprise the coaches sample. Of the 873 responding coaches, 15.1 percent were coaching with a minor in physical education, and 20 percent were without a major or minor in physical education, indicating that a total of 35.1 percent lacked a major in physical education. Only 29.2 percent of the coaches surveyed were teaching physical education full time, 45.8 percent were teaching full time in some area other than physical education, and 24.3 percent were teaching split assignments in physical education and another academic area. The findings from both of the questionnaires completed by principals indicated a preference that all assistant coaches teach either a split assignment in physical education and another academic area, or full time in another academic area.

549. PETERSON, Patricia M. History of Olympic skiing for women in the United States: A cultural interpretation. Ph.D. in Physical Education, 1967. 269 p. (E. Metheny)
The historical development of roles appropriate for women in terms of Olympic skiing, higher education, employment, military service, and athletics, under the rubrics of organization, personnel, achievement, preparation and training, finance, and public interest was examined. Additionally, current attitudes toward conceptions of roles appropriate for women were examined, with emphasis on attitudes toward Olympic skiing. Contemporary attitudes toward women's roles in the behavioral forms under analysis paralleled attitudes toward Olympic skiing for women in the United States. A synthesis of patterns suggested parallelisms between the noted roles for women and between major rubrics, as well as a relationship of attitudes toward these roles.

550. POWERS, Lee R. A comparison of the functions of junior college and secondary physical educators with possible implications for professional preparation of junior college instructors. Ed.D. in Physical Education, 1967. 171 p. (J. M. Cooper)
Junior college physical education department chairmen from 8 southern counties of California and 60 high school chairmen were randomly selected to participate in the study. A 6-man jury of specialists in the preparation of junior college and high school physical educators was also selected. A total of 89 of 98 questionnaires were received. Junior college and high school male physical education department chairmen as well as a jury of chairmen of physical education departments at teacher training institutions perceive some differences in the functions and also the need for professional preparation between the first listed groups. However, due to a substantial total in minority categories in cases where significant differences occur, these differences must be disregarded.

551. PUTNAM, Betty J. Concepts of sport in Minoan art. Ph.D. in Physical Education, 1967. 206 p. (E. Lockhart)
The art which seemed relevant to those activities commonly identified as sport today was selected for study. A method was designed for interpreting the selected art which was arranged into categories of similar, recognizable sports forms. Those sport groups which were found to exist in Minoan art included: bull sport, combat, hunting and fishing, swimming, and tumbling. The art of each sport classification was examined and the common elements and ideas which were found to exist were identified as follows: the Minoan regarded sport as a relationship with the forces of the universe, a personal interaction with the deities, an objective measure of success and failure, a risk and danger to self, and an experience

structured by man which was meaningful to the participant and the spectator as well.

552. RICE, Sheila D. The rate of learning motor tasks. Ph. D. in Physical Education, 1967. (A. E. Lockhart)

553. SORANI, Robert P. The effect of three different pace plans on the cardiac cost of 1320-yard runs. Ph. D. in Physical Education, 1967. (H. A. deVries)
Nine male middle-distance runners served as subjects. By means of radio telemetry, heart rate responses were recorded while the subjects ran three-quarters of a mile on a 440-yard dirt track. Three pace conditions were compared: steady pace; slow-fast pace; and fast-slow pace. None of the 3 experimental pace conditions were significantly more efficient when net cardiac recovery cost or net cardiac costs were used as criterion measures. The fast-slow pace did result in significantly higher net cardiac work costs.

554. THOMSON, Patricia Louise. Ontological truth in sport: A phenomenological analysis. Ph. D. in Physical Education, 1967. (H. S. Slusher)

Southern Illinois University, Carbondale, Illinois (R. G. Knowlton)

555. BUTTS, Nancy Kay. The effects of four-weeks smoking withdrawal on certain physiological measures during rest and exertion. M. S. in Physical Education, 1967. 89 p. (R. G. Knowlton)
An exertion bicycle exercise test of 3600 kilopounds of work was administered to 9 college women before tobacco smoking withdrawal, 24 hours, 2 weeks and 4 weeks after withdrawal. Resting and exercise pulse rates and blood pressures significantly decreased with abstention. Vital capacity, timed vital capacity and maximum breathing capacity significantly increased and minute ventilation significantly decreased during the withdrawal period.

556. LASHUK, Michael. A cinematographic study of the full twisting front dive in gymnastics. M, S. in Physical Education, 1967. 49 p. (H. Weber)
Cinematographical records were utilized to determine the pertinent factors involved in performing the full twisting front dive in gymnastics. Mediocre and excellent performances were differentiated. Mechanical and observational analyses were included.

557. MCDONALD, James R. An exploratory study of the ultra-low frequency ballistocardiogram as a measure of predictability for exercise tolerance. M. S. in Physical Education, 1967. 62 p. (R. G. Knowlton)
A ballistocardiograph was used to measure resting heart functions to determine if there were predictable factors with reference to heart rate responses of a subject during and after a prescribed treadmill exercise test. Volunteer subjects (N=25) were selected from the required physical education service courses. Measurements recorded were pulse rate, HI angle, HI wave amplitude, IJ wave amplitude, HK wave amplitude, HK/HI ratio, pulse pressure, mean pulse pressure, systolic pressure and diastolic pressure. The rank-order qualitative analysis used in this study showed little predictability due to the low correlations obtained. The general patterns of the BCG wave components measured in this study showed a trend toward increased amplitude after exercise and then showed a progressive downward trend toward rest values. The

prescribed treadmill test utilized in this study was adequate to discriminate levels of organic function in college students.

558. PATTERSON, Christopher E. Changes in blood pH and heart rate as a result of training. M. S. in Physical Education, 1967. 93 p. (H. Weber)
Changes in blood pH and heart rate were obtained with the use of a t test of a difference before and after training. Significant changes (.05 level) in blood pH occurred during recovery; the trained subjects had a significantly higher pH after 10 to 19 minutes of recovery. The highest exercise heart rate was significantly reduced after training. The correlation between heart rate and blood pH was -0.47, showing a moderate inverse relationship.

University of Southern Mississippi, Hattiesburg, Mississippi

(W. L. Babin)

559. BABIN, Wayne L. The effects of various work loads on simple reaction latency as related to selected physical parameters. Ed. D. in Physical Education, 1966. 101 p. (H. C. Nesbitt)
Subjects were 50 male students at the University of Southern Mississippi. Physical measurements used were: extension strength of the elbow, plantar flexion strength of the foot, strength-mass ratio, one-minute step test, McCloy's classification index, specific gravity, back strength, leg extension strength, and weight. Various work loads for the arms and legs were administered for 10 days. Conclusions reached were that arm and leg reaction time improved initially with work; the data supported Ranke's theory that waste or end products inhibit simple reaction time; reaction times before and after the various work loads were not highly related to any of the physical parameters and were a specific rather than a general trait; and no curvilinear relationship was denoted between the beginning and terminal reaction time means.

560. LARSON, James W. The effects of training with concentric and eccentric muscular contractions on various physical parameters. Ed. D. in Physical Education, 1967. 115 p. (R. F. McDavid)
Data collected on 87 males with a mean age of 13.7 years, were analyzed using the analysis of variance technique and the t test. It was concluded that a program of weight training utilizing concentric or eccentric contractions developed strength; muscular endurance was improved in some muscle groups through training performed with concentric or eccentric muscular contractions; significant gains in speed of muscular contraction occurred to a lesser degree; strength increases were not consistently found with increases in muscular endurance and/or speed of muscular contractions; and differences existing due to the training regimens in regard to the test criteria were not consistent.

561. PERKINS, Rodgers Gene. The relationship of air expulsion pressure to selected physical parameters. Ed. D. in Physical Education, 1967. 93 p. (R. F. McDavid)
Subjects (N=51), whose ages ranged from 18-23 years, took part in the study. Measurements from 15 variables were used to formulate the 8 physical factors, namely, McCloy's classification index, body surface area, Rogers' short strength index, body power, speed, cardio-respiratory endurance, agility, and physical fitness. Air expulsion pressure was measured with a mercury monometer. The correlation was very low with all the variables and factors except that of power, as measured by the standing broad jump (r = .30). The relationship of the automatic power gauge and the 3 tests of power: the chalk jump, the standing broad jump,

and the 50-yard dash, indicated validity coefficients that were significant beyond the .05 level of confidence.

Springfield College, Springfield, Massachusetts (J. E. Genasci)

562. ARNHEIM, Daniel D. The relationship between skeletal dysplasia and incidence and recurrence of knee and ankle sprains among college sports participants. D. P. E., 1967. 165 p. (C. Shay)
Participants in instructional physical education, intramural, and intercollegiate athletics were measured and categorized for skeletal dysplasia. For all subjects studied it was concluded that skeletal dysplasia was not a factor in the incidence of knee or ankle sprains, nor in the recurrence of knee sprains, but was a factor in the recurrence of ankle sprains. Several conclusions are offered regarding types of sports as well as positions played.

563. BUCKLEY, Chester W. Contemporary recreation in selected countries and colonies of Asia. D. P. E., 1967. 448 p. (C. Shay)
Information was obtained by means of a descriptive survey on contemporary recreation in 35 selected countries and colonies of Asia and organized into meaningful and related units.

564. CAMPBELL, Wilburn A., Jr. The relationship between buoyancy of the Negro male and learning the crawl stroke. M. S. in Physical Education, 1967. 41 p. (J. Parks)
Thirteen Negro male subjects between the ages of 12 and 15 who could not swim 20 yards participated as volunteers. Speed and distance were the criteria used for determining the ability to learn the crawl stroke through 2 methods of teaching: one group with a flotation device and one group without. After teaching and testing for 9 lessons it was concluded that there is a positive relationship between buoyancy and learning selected skills in the crawl stroke. There is no significant difference between buoyancy and learning the skills of the prone glide and diving.

565. CANTRELL, Richard T. The relationship between playing ability and selected skills in ice hockey at the seventh grade level. M. S. in Physical Education, 1967. 37 p. (J. Genasci)
Nine specific skills involving speed, endurance, agility, and stick handling as performed by 18 boys were compared to the over-all ratings of the boys by competent judges to determine their degree of relationship. It was determined that 6 of the 9 skills related significantly to the criterion, and that these skill tests could be used in selecting team members.

566. CARRINGTON, David F. The effects of isometric exercise on the learning of stroke technique by beginners. M. S. in Physical Education, 1967. 142 p. (C. Shay)
Freshman women (N=32) divided into 2 groups, met 3 times per week for 18 weeks for swimming instruction. The lone factor that differentiated the two groups was a set of prescribed isometric exercises which the experimental group performed each lesson day. Analysis of covariance revealed no significant difference at the usual levels of the performances measured.

567. DAVIS, Benjamin H. III. A study of the time involved in the basketball throw-in. M. S. in Physical Education, 1967. 85 p. (E. Steitz)
This study was conducted to determine if the 5 seconds allotted to the "thrower-in" is of sufficient duration to place the ball in play against the modern pressure defenses. Observations and recordings were done on

38 university, college and junior college contests and 34 high school contests. It was concluded that there is no necessity at the present time to extend the throw-in time limitation in the game of basketball. There were several interesting findings related to the manner of officiating, varying degrees of defensive pressure and loss of possession of the ball on the throw-in.

568. DRURY, Leon A. III. An evaluation of an in-season isometric strength training program for basketball. M. S. in Physical Education, 1967. 57 p. (W. Sinning)
Freshman and junior varsity college basketball players were randomly assigned to a control or an experimental group for the purpose of determining the effects of a selected set of isometric exercises on the players' leg strength, power, and muscular endurance during the season. After an 8-week program and retesting and data treatment by an analysis of variance and Duncan multiple range test, it was concluded that even though the leg strength did improve significantly, the functional value of this strength was not shown since there was no concomitant change in muscle power and stamina.

569. FOSTER, Mildred Y. A comparison of the programs in physical education in the United States of America and the Union of Soviet Socialist Republics. M.S. in Physical Education, 1967. 221 p. (A. Kidess)
The author spent 40 days in the USSR in the cities of Leningrad, Moscow, Kiev, Volgograd, Rostov, Tbilisi and Erevan collecting data for the study. The author's ability to speak Russian was limited, hence she was dependent upon Soviet interpreters or English-speaking Russians. The author lived in Sports Camps, trained with Soviet Women's Basketball Teams, visited schools and universities, talked with college students and consulted with leading educators. Additional data were obtained from Soviet governmental publications, books, periodicals and newspapers.

570. FREEMAN, Robert A. An analysis of the skills and basic strategy in squash rackets. M. S. in Physical Education, 1967. 172 p. (E. Seymour)
Photographs depicting the various elements of each stroke and the 3 basic serves plus illustrations of court strategy comprised the basis for analysis. The data for the study were obtained primarily from squash racket books, unpublished materials and interviews with selected squash coaches in New England. A jury of 5 experts served in the selection of key fundamentals.

571. GEORGE, Gerald S. A cinematographic and mechanical analysis of the arched kip on the horizontal bar. M. S. in Physical Education, 1967. 72 p. (E. Steitz)
Eight specific hypotheses dealing with velocity, acceleration, center of gravity and body position were investigated by analyzing the skill as performed by 3 expert performers. Specific conclusions were reached for each of the hypotheses which can serve as a source for students studying mechanical analysis as well as performers and coaches who are concerned with the execution of the skill.

572. GILBERT, Paul F. The effect of differing sleep intervals on selected sports skills. D. P. E., 1967. 141 p. (J. Genasci)
Selected intervals of sleep as they affected the performance ability of items involving accuracy and hand-eye coordination of college age male athletes were investigated. The sleep intervals were 4, 7, and 10 hours in length. The subjects performed their sleeping in controlled

environmental sleep rooms for a 3-day period. It was concluded that the varying sleep intervals did not affect the performance scores of the subjects with two notable exceptions, and these are discussed.

573. GROCKI, John M. Music and its effect on the performance level of selected physical activities. M.S. in Physical Education, 1967. 49 p. (C. Shay)
Boys in the 9th and 10th grades performed various exercises with and without music over a 6-day testing period. The results were varied and it was concluded that march music may enhance the performance level providing the exercises have already been learned. It was suggested that attention should also be given to the rhythmical patterns of the music and the exercise.

574. GUERETTE, Claude. An organizational pattern in gymnastics for the French-speaking secondary schools of the Province of Quebec. M.S. in Physical Education, 1966. 80 p. (J. Parks)
After surveying and evaluating the current status of intramural and interscholastic programs and the equipment needed for the conduct of the program, a proposal dealing with the establishment of an organization for the conduct of gymnastic activities was offered as were several specific recommendations relevant to the responsibilities and operation of such an organization.

575. HOAGLAND, Kenneth A. A survey of adapted physical education programs in public high schools. M.S. in Physical Education, 1967. 64 p. (J. Parks)
Selected public high schools in Connecticut, Massachusetts and Rhode Island were surveyed as well as state directors or supervisors of physical education throughout the nation. Based on the responses, the following conclusions were offered: inadequate provisions have been made for the physically handicapped students in most schools; only a few teachers of physical education have had sufficient training in adapted physical education to permit them to work effectively with the physically handicapped child; the majority of states did not have written policies mandating the inclusion of physically handicapped students in physical education programs; and states with written policies mandating physical education for the physically handicapped pupil had a greater percentage of physically handicapped students included in the physical education program.

576. HOFFMANN, Ronald C. The history of the American Canoe Association 1880-1960. D.P.E., 1967. 228 p. (C. Shay)
Major events and items of significance were handled in separate chapters. Twelve major findings were given regarding membership, international outreach, competition, safety, conservation and other matters.

577. KLISSOURAS, Vassilis. Energy metabolism in swimming the dolphin-butterfly stroke. D.P.E., 1967. 147 p. (W. Sinning)
Six college swimmers experienced in the stroke served as subjects and were tested 24 times. The oxygen consumption while swimming with the dolphin-butterfly arm stroke or the dolphin leg kick, increased exponentially with an arithmetical increase in swimming velocity. For mechanical efficiency, a parabolic pattern is shown for each of the 3 methods of swimming. It was concluded that a fair estimate of the potential performance time for swimming a specified distance can be predicted on the basis of the oxygen requirements for swimming at different velocities and the bases of the swimmer's maximum oxygen intake and maximum oxygen debt.

578. LEATHERS, Roger K. A study of the relationships between physical performance and academic achievement of Springfield College students. D. P. E., 1967. 122 p. (C. Shay)
Male students (N=1070) from 5 classes were studied. A factoral analysis was used to investigate the relationship between physical and mental performance. Multiple regression equations and analysis of variance were also utilized to discover whether the results of the factor analysis were in agreement with other statistical procedures. It was concluded that this investigation has not definitely established relationships between components of physical performance and academic achievement. However, partial support for the hypothesis was found.

579. LUNDBERG, Leonard V. Survey of varsity football injuries at the United States Military Academy for 1965. M. S. in Physical Education, 1966. 68 p. (C. Shay)
A compilation of injuries sustained by cadets was completed. Categories for tabulation included some of the following: type; number; position of player; recovery time; time during season, day of week; new or recurring; part of body; and time lost from team. Recommendations were offered which would be useful to coaches and participants.

580. McCAFFREY, Doris. A follow-up of the women physical education graduates of Springfield College. M. S. in Physical Education, 1966. 68 p. (C. Shay)
This study was designed to determine the teaching experience of the physical education women majors who graduated between the years of 1954 and 1962. Three major conclusions were drawn: the women physical education graduates of Springfield College are doing the type of work for which they prepared; there is a definite leaning in the direction of secondary teaching; there is little need for an academic minor as a second teaching subject.

581. MANZI, Robert. A comparison of two methods of placekicking a football for distance and accuracy. M. S. in Physical Education, 1967. 49 p. (J. Genasci)
Male Springfield College varsity, junior varsity and freshman soccer players experienced in both the toe and instep kick served as subjects. Both the accuracy test and the distance test scores were subjected to a 2-way classification analysis of variance procedure. When kicking was performed under equal or similar conditions, the investigator concluded that the pivot-instep kick method of kicking is more accurate at all distances, (10-, 16-, and 22-yard line). Either method of placekicking a football, where the number of approach steps is limited to 2, will produce the same or similar distance kicked.

582. MOUDGIL, Ranvir. Electrogoniometric comparison of the straight instep and pivot-instep kick in soccer. M. S. in Physical Education, 1967. 42 p. (E. Steitz)
All recordings were taken from one right-footed kicker. The conclusions are as follows: the straight instep kick was found to be 23. 36 percent more accurate than the pivot-instep kick; the ball velocity of the pivot kick was 9. 83 feet per second greater than that of the straight instep kick; positive correlation of . 76 was obtained between the knee velocity and the velocity of the ball in pivot-instep kick; and the hip, the knee and the ankle joint action were identical for both types of kicks.

583. MURRAY, Mildred C. A study to document the changes in women's gymnastics from 1940 through 1965. M. S. in Physical Education, 1967. 89 p. (J. Genasci)
A very careful tracing of the changes was completed by gathering evidence

about hypotheses concerning: the impact of the changes; international trends; and rules, terminology and apparatus. Sufficient evidence was gathered to present 11 specific conclusions relevant to the hypothesis.

584. MYLLYMAKI, Carl W. III. A study to compare five methods of sprint finishes. M.S. in Physical Education, 1966. 29 p. (J. Genasci)
An attempt was made to determine which of the following 5 methods of finishing a sprint race was fastest: lean, dip, lunge, shrug, and run-through. Experienced college sprinters were tested by a mixed rotated pattern where the timing was accomplished by a chronoscope triggered by a specially constructed toggle switch. Photographs were taken and used to authenticate the form of the finish. The analysis of variance treatment was applied to the data and no statistical differences were found.

585. NEKTON, Roger. A film and manual of the hand-foot concept of teaching beginning swimming survival positions and elementary diving. M.S. in Physical Education, 1967. 72 p. (C. Silvia)
The primary stages of the crawlstroke, backstroke, selected survival positions, and beginning diving are emphasized.

586. PANNES, Nicholas. A comparison of the lengths of time for three techniques of quarterback dropback-passing to three different depths. M.S. in Physical Education, 1967. 55 p. (J. Parks)
After 5 varsity quarterbacks from the Springfield College football team were tested 450 times and the scores treated by a 2-way analysis of covariance technique, it was concluded that: there was no difference in the length of time that it took the quarterbacks to drop back to a specific distance using either the sprint back, cross-over, or back pedal technique; and there was a significant difference in the length of time it took the quarterbacks to retreat when the distance varied between 4 and 6 yards, and between 6 and 8 yards.

587. PETERSON, Arthur N. A comparative study of the stolen base in college baseball. M.S. in Physical Education, 1967. 43 p. (C. Shay)
After analyzing records of the Springfield College baseball team and its opponents over 10 competitive seasons it was concluded that success follows the stealing of second base; both teams successfully stole second base approximately 80 percent of the time; both teams lost many runners because of double plays, force outs, key situations. Many implications arose and recommendations are offered to assist the player and coach in stolen-base strategy.

588. POLIDORO, J. Richard. A comparison of four methods of executing a cross-over step in stealing second base. M.S. in Physical Education, 1967. 41 p. (E. Seymour)
The 4 cross-over step methods were initial, pivot, stutter, and double-pivot. The 10 subjects were junior varsity baseball team members who performed 4 times under each method. The test distance was 60 feet and the time was recorded with an automatic timer. It was concluded that the initial cross-over step was the fastest.

589. REED, Edward W., Jr. Analysis of shoulder joint adduction, oblique adduction and extension of the shoulder joint. M.S. in Physical Education, 1967. 72 p. (C. Shay)
It was concluded that there were significant differences in strength among the 3 shoulder joint movements tested at the 45-degree angle, adduction being stronger than oblique adduction, and that, stronger than extension.

Certain implications related to swimming were noted, especially the completion of the underwater phase of the arm strokes in the crawl and dolphin-butterfly swimming techniques.

590. RINGER, Lewis B. An electrogoniometric study of the wrist and elbow in the crawl arm stroke. D.P.E., 1967. 115 p. (J. Genasci)

It was concluded that training for speed swimming does not affect the performance of the swimmers in flexion and extension of the wrist throughout the stroke, underwater duration, recovery duration, stroke duration, or instant of maximum flexion underwater. However when the varsity groups were compared to the untrained group, the experienced swimmer had greater elbow extension at hand entry into the water, at maximum extension in recovery, and maximum flexion in recovery.

591. ROGERS, Wm. Dudley. A study to determine the effect of the weight of football uniforms on speed and agility. M.S. in Physical Education, 1967. 57 p. (J. Parks)

The uniforms were classed as heavy (18-1/16 lbs.), medium (16-3/16 lbs.), and light (14-1/2 lbs.). The subjects performed 2 speed runs and 2 agility runs with the uniforms and without a uniform. The selected football uniforms had an effect on the speed and agility of the subjects. In almost all group comparisons, as the uniform weight decreased, speed and agility performances were faster. The strength index of the players had a significant effect on speed, but did not affect agility.

592. ROYS, Charles N. A comparison of the movement times in executing two methods of the head-first slide into first base. M.S. in Physical Education, 1967. 59 p. (E. Bilik)

This investigation was conducted to determine whether there was any significant time difference between the movement times of the head-first slide initiated by a cross-over step and a head-first slide initiated by a lead-foot step when returning to first base from a stationary lead position. A total of 600 times were recorded, 300 for each method. Conclusions were that the mean score for the head-first slides initiated by a cross-over step was .732 seconds and for the slides initiated by a lead-foot step 1.007 seconds. The resulting *t* of 19.5 was significant (.01 level).

593. SLINGERLAND, Donald M. An illustrated manual of the basic techniques used in the hammer throw. M.S. in Physical Education, 1967. 72 p. (V. Cox)

The procedure included a review of previous research and literature, determination of hammer throwing regulations, terms used, mechanical principles involved, teaching techniques and progression. The illustrated manual was then prepared with some limitations in mind, such as no consideration of body type, left-handed throwers, various styles of throwing or comparisons with different performers.

594. STONE, William J., Sr. Scuba diving courses offered at selected YMCAs in New England and New York State: a survey. M.S. in Physical Education, 1967. 55 p. (C. Silvia)

The information secured from the 83 YMCA's surveyed was presented in 3 major categories: course, instructors, and administration. Based on the conclusions, a list of 10 specific and meaningful recommendations are offered.

595. SYLVIA, Alfred J. Selected community, education, and physical education factors influencing student withdrawal from secondary schools. D.P.E., 1967. 357 p. (C. Shay)

Evidence was gathered from 8 communities in Massachusetts and Connecticut representing high, middle and low socio-economic status. The data derived from each community and school studied indicated that a community's high school dropout rate was very closely associated with the community's socio-economic status and the quality of some of its educational programs. For example, the high school dropout rates were generally higher for those communities which had lower socio-economic status and poorer educational, physical education and guidance programs. However, those students who did dropout were quite similar in variables of IQ, course of study, lack of success in courses, lack of participation in extraclass activities, father's occupation and number of brothers and sisters. There was a high degree of similarity with regard to these variables for the students who stayed in school.

596. VIERKORN, George E. A comparison of stationary and running forehand and backhand ground strokes to accuracy. M.S. in Physical Education, 1966. 41 p. (C. Shay)
The evidence upheld the hypothesis that greater accuracy in stroking forehand and backhand is attained from stationary position.

597. WARREN, Craig A. A comparative study of two methods of initiating a steal of second base. M.S. in Physical Education, 1967. 30 p. (E. Steitz)
Ten experienced college baseball players were given 150 trials for each technique: the "sprinter's crouch start" and the "2-way 8-foot stationary lead." The final t ratio allowed the investigator to conclude that the 2-way 8-foot stationary lead was significantly faster and recommend its use over the sprint start even though the runner may be picked off.

Stanford University, Stanford, California (J. E. Nixon)

598. FARIA, Irvin E. Cardiovascular response to exercise as influenced by training of various intensities. Ed.D. in Physical Education, 1968. 83 p. (W. K. Ruff)
The relative effects of training to heart rates of 120-130, 140-150, and 160-170 beats per minute were investigated using 40 untrained male students, 18-24 years old. Volunteers were given a pre- and post-treatment physical work capacity (PWC 180) test on a Monark bicycle ergometer. Heart rates were monitored at states of rest, work and recovery using a Grass polygraph. The experimental groups trained 5 consecutive days per week for 4 weeks using a constant work load consisting of a 17-1/2" bench step at 30 step-ups per minute until their heart rate was elevated to the predetermined training group level. A control group played volleyball. A significant (P .05) difference in training effect appeared between the control, and the 140-150 and 160-170 groups. Training to a heart rate between 120-130, 140-150, and 160-170 resulted in an increase in physical work capacity as measured in this study.

599. GILMORE, John C. The professional levels of tasks of teachers of boys' physical education. Ed.D. in Physical Education, 1967. 156 p. (W. K. Ruff)
This study identified 68 tasks typically performed by teachers of high school boys' physical education (excluding interscholastic coaching tasks), classified these tasks as "professional," "semiprofessional," or "nonprofessional," and obtained the amounts of time spent on the tasks from selected physical educators. Of 60 subjects solicited, 39 reported that they spent 46 percent (group mean) of their time on professional tasks, 25 percent on semiprofessional tasks, and 29 percent on nonprofessional tasks. The tasks were placed into functional groups of tasks within the

three classifications. It was concluded that teachers of boys' physical education spend considerable time performing tasks of a subprofessional nature, that explicit criteria (developed and used in the study) are helpful but no indispensable in determining professional levels of tasks, and that functional classifications-and-times can serve as a job analysis of the high school physical educator. Recommendations were made for the differentiation of staff in high school physical education, for the preparation of professional teachers and semiprofessional assistants, for the greater professionalization of the physical educator, and for the further study and use of professional criteria.

600. VERDUCCI, Frank M. The effects of class size upon learning of a complex motor task by college students. Ed. D., 1967. 116 p. (J. E. Nixon)
The author investigated the effects of class sizes of 15, 37, and 60 students upon the learning of a complex motor task (Dyer backboard tennis test) by male and female college students. The classes met twice a week for a 30-minute lesson during a 9-week semester. The facilities included 15 tennis courts and a practice board. Subjects in the small-sized class performed significantly higher than subjects in the large-sized class but no differently from individuals in the middle-sized class.

Temple University, Philadelphia, Pennsylvania (A. L. Olson)

601. CORDER, Brice W. The acute and chronic effects of an isometric exercise on selected hematologic measures. Ed. D. in Health Education, 1967. 117 p. (A. L. Olson)
An experimental group (13 young adult males) and a control group (13 young adult males) were utilized in order to determine exercise effect on 4 blood parameters. The blood parameters under investigation were coagulation time, hemoglobin concentration, packed cell volume, and platelet count. Blood samples were assayed before and after exercise at the inception, and after four weeks, and six weeks of training. A single isometric exercise, isometric training with a selected exercise, and a single isometric exercise after training isometrically had no acute or chronic effect on the blood components included in this study.

602. GOOD, Larry A. The effect of exercise on the concentration of plasma-free fatty acids. Ed. D. in Physical Education, 1968. 120 p. (A. L. Olson)
Thirty Caucasian volunteers from Temple University followed a testing schedule consisting of a 12 to 15 hour overnight fast, a postabsorptive sampling period, consumption of a fat emulsion, and an exercise and sampling period 1 and 3 hours postprandially. During the postabsorptive laboratory procedures none of the subjects exercised, but their pulse rates were recorded, and 4 blood samples were drawn. It was concluded that: exercise following the ingestion of a high fat emulsion results in a decrease in the plasma FFA concentration levels; exercise 3 hours postprandially, following a one-hour postprandial exercise period, results in a greater reduction in FFA concentration levels than does exercise one hour postprandially; and subjects with low cardiovascular fitness have higher FFA levels.

603. JACKSON, Gary R. The effect of training at three different heart rate levels upon cardiovascular fitness. M. Ed. in Physical Education, 1967. 52 p. (A. L. Olson)
Seven male college subjects were randomly assigned to train at each of the following heart rate levels, 130, 145, and 160 beats per minute. The training program consisted of 12 minutes of walking on the treadmill,

4 days per week for 6 weeks. The resting heart rate, the heart rate response to 2 work tests (a treadmill test and a bicycle ergometer test), and the recovery heart rate from these two work tests were utilized as estimates of cardiovascular fitness. It was concluded that improvement in cardiovascular fitness is directly related to the heart rate training intensity and that training at an intensity of 145 beats per minute or higher is necessary to improve cardiovascular fitness.

604. KOMARNICKI, James W. The effects of a progressive circuit-training program on the physical fitness of elementary school boys and girls. Ed.D. in Physical Education, 1967. 300 p. (A. L. Olson)

The progressive circuit-training program included isometric and isotonic exercises which were selected to promote the development of muscular strength, muscular endurance, and cardiovascular endurance. Significant differences between the control and experimental groups in favor of the experimental group were found for the following tests: push strength, and arm strength of girls.

605. SCHNEIDER, Esther Lucile. An electromyographic study of the trapezius muscle during the act of holding in target archery. M.Ed. in Physical Education, 1967. 44 p. (D. F. Mapes)

606. SMERIN, Charles. A study of certain problems in the financing of interscholastic athletic programs in high schools. Ed.D. in Physical Education, 1968. 170 p. (H. K. Jack)

607. VINCENT, Murray. The effects of two different endurance training programs on selected red blood cell variables. Ed.D. in Physical Education, 1968. 117 p. (R. D. Liverman)

University of Tennessee, Knoxville, Tennessee (E. K. Capen)

608. ALDRIDGE, John Stanley. A comparative study of selected isometric and isotonic strength tests. M.S. in Physical Education, 1967. 49 p. (E. Capen)

609. BAKER, Jean Arthur. The effects of strength development upon the running speed of high school girls. M.S. in Physical Education, 1967. 61 p. (H. Watson)

610. BURNETTE, Jewell Y. An evaluation and revision of the fitness and physical conditioning program for Knoxville College freshman and sophomore women. M.S. in Physical Education, 1967. 65 p. (P. Crockett)

611. CHRISTOPHER, Marilyn Jean. A comparison of home economics, liberal arts, and physical education undergraduate women on selected personality characteristics. M.S. in Physical Education, 1967. 32 p. (B. A. Plotnicki)

612. COLLINS, D. Ray. A survey of intramural sports programs in the secondary schools of Tennessee. M.S. in Physical Education, 1967. 73 p. (G. Brady)

613. COOTER, George Rankin, Jr. A study of men's required physical education programs of selected colleges and universities throughout the Southeastern United States. M.S. in Physical Education, 1967. 98 p. (G. Brady)

614. EGGERS, Sharon Jean. A comparative study of motor ability skills between educable mentally retarded children and normal children. M.S. in Physical Education, 1967. 59 p. (E. Capen)

615. ELLIOTT, Philip Richard. A cinematographical analysis of the kip-up, the handspring, and the softball throw. M.S. in Physical Education, 1967. 70 p. (G. Brady)

616. HARDIN, Alice J. A comparison of rope skipping and running as endurance activities for seventh grade girls. M.S. in Physical Education, 1967. 65 p. (H. Watson)

617. HARTNESS, Michael Ralston. The relationship of flexibility, strength, and power. M.S. in Physical Education, 1967. 56 p. (E. Capen)

618. HILL, Wilma Sue. The reliability and objectivity of selected anthropometric measurements. M.S. in Physical Education, 1967. 61 p. (P. Crockett)

619. HOLLIS, Peter John. The development of a new professional physical education curriculum for Tusculum College. M.S. in Physical Education, 1967. 68 p. (A. Kozar)

620. HUGHES, Norman Lester. A proposed recreation program for the Tennessee School for the Deaf. M.S. in Physical Education, 1967. M.S. in Physical Education, 1967. 114 p. (B. Plotnicki)

621. JONES, Donald Collins. A study of some of the effects of a grant-in-aid on a selected group of college football players. M.S. in Physical Education, 1967. 80 p. (A. Kozar)

622. JONES, Thomas Wilkins, III. The development of fitness norms for the sixth-grade children in the Knoxville city schools. M.S. in Physical Education, 1967. 44 p. (E. Capen)

623. KILGORE, Doris M. A study to determine the effect of the modified pull-up as compared to the assisted vertical pull-up on selected muscle groups. M.S. in Physical Education, 1967. 54 p. (P. Crockett)

624. LAMBERTON, Pauline D. The relationship of certain anthropometric measurements to physical fitness scores. M.S. in Physical Education, 1967. 43 p. (B. Plotnicki)

625. LANE, Roderick Lenford, III. The reliability and objectivity of selected skinfold measurements. M.S. in Physical Education, 1967. 46 p. (E. Capen)

626. LYONS, M. C. Proposal and development of a boys' day camp at Norris Lake, Tennessee. M.S. in Physical Education, 1967. 60 p. (S. Venable)

627. MAXSON, William L. The effects of leg strength development on running speed in the fifty-yard dash and one-hundred-yard dash. M.S. in Physical Education, 1967. 80 p. (E. Capen)

628. MAXWELL, Melvin Ivey. A suggested boys' physical education program for Doyle High School based on the students' attitudes, interests, and needs. M.S. in Physical Education, 1967. 64 p. (G. Brady)

629. MCGEE, William Jerome. The relationship between bar size and hand size in performing pull-ups. M.S. in Physical Education, 1967. 35 p. (A. Kozar)

630. MEASEL, Betty Joan. A study of the changes in selected aspects of kinesthetic perception among freshman college women enrolled in elementary modern dance and gymnastics. M.S. in Physical Education, 1967. 44 p. (E. Capen)

631. MOYER, Mary Suzanne. A film analysis to determine common errors in a beginner's tennis serve. M.S. in Physical Education, 1967. 85 p. (H. Watson)

632. NILSSON, Thomas Harold. A study of the effects of leg weights in the development of pull-up ability in college men. M.S. in Physical Education, 1967. 45 p. (E. Capen)

633. PENDERGRASS, William Malcolm, Jr. A study of the physical education backgrounds, interests, and knowledge of a selected group of high school senior boys in Knoxville City and Knox County, and East Tennessee. M.S. in Physical Education, 1967. 65 p. (G. Brady)

634. PERRY, Betty Marie. A comparative study of physical fitness and order of birth in a selected group of South High School girls. M.S. in Physical Education, 1967. 35 p. (E. Capen)

635. PERRY, John Henry. A comparative study of Exer-Genie and isotonic conditioning programs. M.S. in Physical Education, 1967. 38 p. (B. Plotnicki)

636. ROBBINS, John Philip. The effect of the Exer-Genie on selected components of physical performance in adolescent boys at the Tennessee School for the Deaf. M.S. in Physical Education, 1967. 81 p. (S. Venable)

637. SHAW, John Hamilton. A preliminary investigation of a volleyball skill test. M.S. in Physical Education, 1967. 48 p. (A. Kozar)

638. TALLEY, Robert Thad. A comparison of pulse rate, blood pressure, and vital lung capacity of the sprinter and the distance runner. M.S. in Physical Education, 1967. 42 p. (B. Plotnicki)

639. TAYLOR, Wayne Gilbert. A survey of the existing state regulations concerning the certification requirements of secondary school physical education teachers in the fifty states and the District of Columbia. M.S. in Physical Education, 1967. 70 p. (G. Brady)

640. TEETER, Jo C. The reliability and objectivity of selected anthropometric measurements. M.S. in Physical Education, 1967. 73 p. (P. Crockett)

641. WATT, Edward William. A study of two training programs to determine their effects on time and selected physiological aspects on distance runners. M.S. in Physical Education, 1967. 65 p. (B. Plotnicki)

642. WILLOCKS, Fred Raymond. The reliability of the isometric measurement of abdominal strength utilizing a cable tensiometer. M.S. in Physical Education, 1967. 42 p. (E. Capen)

University of Texas, Austin, Texas (L. W. McCraw)

643. ALDERMAN, Melba Kay. An investigation of the need for posture education among high school girls and a suggested plan of instruction to meet these needs. M. Ed. in Physical Education, 1965. 104 p. (J. Haag)

Posture photographs of 83 sophomore high school girls revealed that 93 percent had posture deviations. Subjects had had little or no previous posture instruction, and after 8 lessons in regular health education classes, 62 percent of the subjects showed improvement.

644. BENEDICT, Irvin J. Analysis of health-related textbooks adopted in Texas, 1935-65, in relation to their coverage of communicable diseases prevalent during the period. Ed. D. in Physical Education. 259 p. (J. Haag)

Ninety-four books in health education, life science, biology, and physiology, grades four through twelve, were examined in terms of emphasis given to 10 communicable diseases found prevalent in Texas over a period of 30 years. Texts were screened on the basis of total word count and for the appearance of 5 specific concepts of diseases. The content of a large proportion of the texts was found to be meager, incomplete, or superficial. Secondary health education texts contained more information than those in other areas. Life science books were rated the poorest of those studied as far as health content is concerned.

645. CARLSON, Burton Robert. Relative isometric endurance and different levels of athletic achievement. M. Ed. in Physical Education, 1967. 116 p. (W. Kroll)

Male college students (N=47) were divided into 3 groups based on level of athletic achievement in the sports of football, swimming, and cross-country. The tests administered to each subject were a strength test of the right elbow flexors and relative load isometric endurance tests of the right elbow flexors. While no differences in holding time were found between the 3 groups, significant strength differences were noted. Theoretical consideration was given to differences in holding time which existed when subjects with high strength levels were compared to subjects with low strength levels.

646. CRENSHAW, William Anthony. Effects of orthokinetic segments upon motor responses of normal male college students. Ed. D. in Physical Education, 1967. 175 p. (W. Kroll)

This study was concerned with the effects of orthokinetic segments upon motor responses on normal male college students in the vertical jump and standing broad jump. Seventy-two subjects performed the jumps with and without prior mild exercises, 3 days a week for 8 weeks under 3 experimental conditions. The study failed to demonstrate the presence of orthokinetic effects, but the clinical evidence of prior investigators was not refuted.

647. GUESS, Liles Clay. A comparison of two training programs for maintaining increased muscular strength developed during an off-season conditioning program. M. Ed. in Physical Education, 1967. 70 p. (S. Burnham)

Sixty varsity football players engaged in pre-conditioning weight training during the spring and summer months. Of these individuals, 28 participated in a heavy resistive-exercise program once per week during the football season. The remaining 32 had no heavy resistive training. Results indicate that regular football practice will not maintain strength development during the pre-season conditioning program but that such practice should be supplemented by heavy resistive exercises.

Texas Woman's University, Denton, Texas (A. S. Duggan)

648. BENSON, Berneda Cartwright. The construction and administration of a knowledge test regarding the use of alcoholic beverages for high school students. M. A. in Health Education, 1967. 126 p. (R. Amos)
The original alcohol knowledge test was administered to 354 randomly selected Texas high school students. Validity and reliability were established for the test. It was concluded that the alcohol knowledge test proved to be a valid measure for determining high school students' knowledge regarding the use of alcoholic beverages; the senior girls' test mean score was superior to the senior boys, the junior girls and boys, and the sophomore girls and boys at the .05 level of significance; and there were no significant differences among the test mean scores of the senior boys, the junior boys and girls, and the sophomore girls.

649. CHEATUM, Billye Ann. A history of selected golf tournaments for women with emphasis upon the growth and development of the Ladies Professional Golf Association. Ph. D. in Physical Education, 1967. 454 p. (C. Sherrill)
The investigation entailed the collection, organization, and analysis of data pertinent to the history of golf for women in the United States of America from 1889 through 1964, with special emphasis upon the growth and development of the Ladies Professional Golf Association. The year 1889 was selected as the initial date for the history since that is the year in which the first documented evidence of a woman golf player in the United States of America appears.

650. COLE, Clara Jane. A study of physical fitness and selected sports skills of normal and educable mentally retarded girls enrolled in Levelland Junior High School in Levelland, Texas. M. A. in Health Education, 1967. 175 p. (R. Amos)
The AAHPER youth fitness test and selected skills tests in basketball, volleyball, and softball were administered, on a pre- and post-test basis, to 8 educable mentally retarded girls and 36 normal girls. Significant gains were obtained by the normal girls on sit-ups and 4 of the sports skills tests: ball handling, wall pass score, 30-second shooting in basketball, and batting in the softball battery. The educable mentally retarded girls did not obtain significant gains on any of the tests.

651. COLEMAN, Dorothy M. The effect of a unit of movement education upon the level of achievement in the specialized skill of bowling. Ph. D. in Physical Education, 1967. 275 p. (B. Meyers)
The ninety-three college women who served as subjects were placed in 3 groups: (1) delayed experimental group, which received the prerequisite unit of movement education and had a six-weeks delay before beginning the unit of bowling instruction; (2) experimental group, which received the prerequisite instruction in movement education and moved immediately. into the bowling instruction unit; (3) control group, which received no specific instruction in movement education and participated only in the unit of bowling instruction. Conclusions of the study were: the prerequisite instruction in principles of movement had no appreciable effect upon college women's ability to achieve a level of performance in bowling higher than that of students who did not have such instruction; the application of movement principles in the actual performance of motor patterns utilized in bowling, as rated by trained judges, was not significantly affected by a prerequisite unit of instruction in movement education; and knowledge of principles of movement, expressed through a written examination over these principles, appeared to be learned through specialized

skill instruction in bowling as adequately as through prerequisite instruction in a unit of movement education in this investigation.

652. GARCIA, Marlene O. Achievement in selected fundamental gross motor skills of educable mentally retarded girls enrolled in special junior and senior high schools in San Antonio, Texas. M. A. in Physical Education, 1967. 140 p. (J. Rosentswieg)
Data were collected through the administration of the 30-yard dash for time, the baseball throw (where throwing performance was measured in feet per second), and the standing broad jump. Comparisons were made between: the 12 through 16 year old age groups; the educable mentally retarded junior and senior high school girls; and the educable mentally retarded 13- and 14-year-old girls with those performances previously achieved by 13- and 14-year-old mentally normal girls. The findings indicated that the levels of achievement of the 12- to 16-year-old mentally retarded girls indicate motor retardation in the gross motor skills of running, throwing, and jumping.

653. HARDY, Mary Johnston. A study of frustration and height-weight classifications of college women. M. A. in Health Education, 1967. 75 p. (R. Amos)
College women students (N=130) served as subjects. The following conclusions were made. The consistently higher group conformity rating of the overweight-obese group seemed to indicate that the subjects in this classification group had built up more stable and adequate patterns of reaction to frustration, and tended to react in an appropriate manner without interference of residuals from previous behavior more often than the normal-stocky group and the underweight-slender group. The normal-stocky group of subjects appeared to be comprised of subjects who were less well adjusted when compared with the overweight-obese subjects, were better adjusted than the normative group of the Rosentswieg picture-frustration study, and showed comparable adjustment when compared with the underweight-slender group. The larger standard deviation of the normal-stocky group seemed to be attributable to the presence of many individual low group conformity ratings in this group.

654. HICKS, Joanna Virginia. The construction and evaluation of a battery of five badminton skill tests. Ph. D. in Physical Education, 1967. 153 p. (B. Myers)
Data were collected from three judges' ratings of the subjects' ability to execute the selected skills in a game situation; tournament scores; total judges evaluation of over-all playing ability; the performance scores for each of 20 trials on the clear test, smash test, overhead drop shot test, and strategy test; and scores for each of 3 trials on the footwork test. College women (N=64) served as subjects. It was concluded that the strategy, clear, and smash tests are valid and reliable measures. It was further concluded that the overhead drop shot and the footwork test are not valid tests to measure a beginning player's ability.

655. HOWE, Dolores Pat. The influence of five schedules of mental practice upon the physical performance of a novel gross motor skill after a criterion measure of skill has been attained. Ph. D. in Physical Education, 1967. 91 p. (B. Meyers)
Data were collected from the performance scores of an initial test and a final test of juggling ability administered to the subjects in each of 5 experimental groups. The investigator concluded that a combination of mental and physical practice of the skill of ball juggling on a massed practice schedule was the most effective method to improve the performance of a ball juggling task among the college women subjects who participated in the experiment. No significant differences were found

between groups that read prepared instructions and groups that wrote their own directions for the execution of the skill of ball juggling.

656. LOVELESS, Myreen. A study of the relationship between physical fitness, reading achievement, and perceptual-motor skills and participation in a concentrated unit of selected physical activities of fifty second and third grade children. M. A. in Physical Education, 1967. 175 p. (D. Deach)

The experimental subjects participated in 31 days of selected physical activities for 30 minutes during each school day. The control subjects participated in 31 days of free play activities. Data were obtained from the administrations of the Glover physical fitness test, the California reading test, and selected items from Kephart's perceptual-motor survey rating scale. The results indicated that participation in selected physical activities was beneficial for the experimental groups on certain test items. Intercorrelations between physical fitness, reading achievement, and perceptual-motor skills were presented. No consistent pattern was reported when the experimental and the control groups were compared. Each group excelled the other in various combinations. It was concluded that the younger the child is, the more potential he has for significantly improving in perceptual-motor skill activities.

657. RUSTIN, Barbara M. The development of a series of instructional television programs for use in teaching elementary school classroom music through dance movement. M. A. in Dance and Related Arts, 1967. 264 p. (C. Sherrill)

The investigator formulated thirty-three lesson outlines which were published by the Georgia State Department of Education under the series title Do Re Mi, prepared scripts and produced the lessons, and described the specific teaching procedures through which dance movement might further musical understanding. Imaginative stage properties and dance movement were utilized throughout the series in order both to maintain interest of the students and clarify specific musical concepts. Questionnaires which were tabulated from a random selection of 26 of the 77 systems participating in the series indicated that 89 percent of the total number of responses experienced positive gains in musical learning as a result of the television series.

658. SEARS, Barbara Anne. A comparative study of the prevalence of health misconceptions among students in selected components of the Texas Woman's University. M. A. in Health Education, 1967. 154 p. (C. Sherrill)

Data were collected through the administration of the Borozne health opinionnaire to 555 resident junior and senior students representative of the 8 components comprising the Texas Woman's University. Mean total percentages were calculated for each college and/or school and for the total sampling. The chi-square statistical technique was applied to the data collected and revealed, among other things, that junior and senior students enrolled in the Texas Woman's University subscribed to many health misconceptions in 7 subject matter areas, regardless of the area of specialization.

University of Toledo, Toledo, Ohio (J. N. Drowatzky)

659. MATSCH, Phyllis L. The effects of various motivational situations and personality factors upon the work performance of college women. M. Ed. in Physical Education, 1967. 65 p. (J. N. Drowatzky)

The California psychological inventory, a finger flexion strength test, and a finger flexion endurance test were administered to 72 college women in 6 experimental groups subjected to various motivational situations. Analysis of variance indicated no significant differences existed between the means of the various treatment groups in either strength or endurance. Likewise, no correlation between strength and endurance scores was observed. The coefficients of variation and standard deviations indicated all of the experimental groups were highly variable in strength and endurance. Examination of the personality profiles suggested that personality and performance were interacting variables.

660. MORGAN, William P. Selected physiological and psychomotor correlates of depression in psychiatric patients. Ed. D. in Physical Education, 1967 148 p. (W. F. Updyke)
The participants in this study consisted of 69 male psychiatric patients between the ages of 20 and 50 years. Previous research indicating that motor dysfunction was closely related to the degree of psychopathology was generally not substantiated by this investigation. It was concluded that the patient's verbalization of physiological and psychomotor retardation appeared to mirror his affective state rater than his physical competence. The correlation between Zung's self-rating depression scale and the MMPI D scale was .72. It was concluded that the SDS appeared to be the most efficacious method of assessing quantitatively the common clinical view of depression. It was postulated that the alcoholic patient was characterized by an elevated "preparedness to react."

661. SWENEY, Suzanne D. The effects of concentric and eccentric muscle training on the ability of high school girls to perform pull-ups. M. Ed. in Physical Education, 1967. 42 p. (W. F. Updyke)
Sixty-six high school girls who were unable to perform a pull-up were tested for isometric strength of the shoulder girdle before assignment to one of 3 groups. Subjects in the concentric exercise group trained by pulling against resistance provided by weights suspended from an overhead pulley system. The eccentric exercise group trained by lowering themselves at a controlled rate from a "chinning" position to a hanging position with arms fully extended. Retests after 6 weeks of training revealed significant gains in pull-up ability of both experimental groups as compared with the controls. Although no difference in strength improvement was found between the experimental groups, the concentric group improved significantly more than did the control group.

Washington State University, Pullman, Washington (R. C. Wiley)

662. BARTHOLOMAUS, Stuart K. A mechanical analysis of selected differentials between maximal- and submaximal-ability pole vaulters. M. S. in Physical Education, 1967. 47 p. (K. A. Penman)
Motion picture films were taken and analyzed of competitive collegiate pole vaulters at Washington State University during the outdoor track season. Selected differentials were compared between 2 groups: 4 maximal ability vaulters who vaulted 15 feet 6 inches and 5 submaximal ability vaulters who vaulted 14 feet. The following selected differentials were measured and calculated (a) three velocities during the last 30 feet of the preparatory run, (b) pole bend at take-off, (c) handspread at take-off, (d) top hand to take-off foot distance, (e) greatest pole bend, (f) "magnitude" of greatest pole bend, and (g) time between take-off and pole release. Results revealed that: the measured differentials were generally of higher values for the maximal ability vaulters than for the submaximal ability vaulters; and the handspread at take-off measurement was the only statistically significant differential.

663. BASSETT, Graeme R. The development of a scale to measure male attitudes toward regular physical exercise. M.S. in Physical Education, 1967. 82 p. (K. A. Penman)

Initially 72 statements were selected and by using judges' ratings, item analysis, and scalogram analysis, a final scale was constructed which consisted of 2 forms, each containing 12 attitude statements toward regular physical exercise. The median phi coefficients for Forms A and B were .668 and .653 respectively. The reliability coefficient calculated by the Rulon internal consistency formula was .632. The scores for 50 of the subjects on Form A of the scale were correlated with their scores on Form A of the Wear physical education attitude inventory. A relatively low correlation of .53 was found to exist between attitude toward regular physical exercise and attitude toward physical education.

664. BROEKER, Herman J., Jr. An investigation of the relative effectiveness of the perpendicular and oblique styles of gripping the football. M.S. in Physical Education, 1967. 45 p. (R. H. Doornink)

The subjects (N=31) practiced the 2 styles 2 hours a week for a duration of 6 weeks. At the completion of the testing period, the oblique grip resulted in a significant superiority in accuracy, and the perpendicular grip resulted in significant superiority in distance when passing the football. Significant relationships between hand strength and maximum distance achieved with each style were found. It was concluded that hand size and strength cannot be used effectively as predictors of the appropriateness of one of the two grips.

665. CARLSON, Mary B. A comparison of the effect of aiming with one or both eyes on the achievement in archery of lateral dominant subjects. M.A.T. in Physical Education, 1967. 37 p. (D. A. Coleman)

All subjects were enrolled in the service course program of the Women's Physical Education Department at Washington State University. The control group (N=12) used both eyes for aiming. The experimental group (N=15) aimed with the dominant eye while the nondominant eye was covered with an eye patch. It was concluded that the use of both eyes in aiming in archery was more effective than the use of one.

666. DOBIE, Dorothy D. Effectiveness of a specific conditioning program on selected tennis skills of women intercollegiate tennis players. M.S. in Physical Education, 1967. 46 p. (M. Phillips)

Women intercollegiate tennis players (N=22) were ranked and matched by the Hewitt achievement test and randomly placed into control and experimental groups. The control group participated in the regular women's intercollegiate tennis practice, while the experimental group, in addition to the regular tennis practices, participated twice a week in a continuous and strenuous 20-minute conditioning program. It was found that both groups improved significantly in cardiovascular efficiency, but there was no significant difference between the two groups. The experimental group did improve significantly in tennis skills, while the control group did not.

667. FRAHM, Arlene M. Comparison between lateral dominance and cross dominance in learning the hook delivery in bowling. M.S. in Physical Education, 1967. 64 p. (D. A. Coleman)

Subjects, 77 college women, were taught the 4-step approach, spot method of aiming and the hook delivery in bowling. Contingency tables for comparison of simultaneous writing, handwriting and tapping tests for determining hand preference showed 100, 92 and 90 percent agreement respectively. The data were utilized to determine cross-dominant and lateral-dominant groups. Initial and final 5-game first ball average scores were

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obtained for both groups and analysis of covariance revealed no significant difference between final adjusted means. Hand-eye dominance did not appear to be a factor in learning the hook delivery in bowling.

668. HALL, Darwin L. The relationship of knee angles and hand spacing to speed in the sprint start. M.S. in Physical Education, 1967. 56 p. (P. D. Gollnick)
Subjects, consisting of junior high school boys and college students, were timed over 30 yards, using five different front-foot placement distances from the starting line (10, 13, 16, 19, and 22 inches). The 10-inch front-foot placement distance from the starting line was better than the 19- and 22-inch spacings in the junior high group (P>0.05). There was no difference within the college group. The 96 degree angle was better than 87 degrees for the front knee and the 120 degree angle was better than 128 degrees through 135 degrees for the far knee in the junior high group. No differences were found in the college group.

669. LANUZZO, Charles D. Effect of exercise on body temperature of rats. M.S. in Physical Education, 1967. 37 p. (P. D. Gollnick)
Five male albino rats with an average final body weight of 322 grams were used as subjects. The animals were trained for 6 weeks to run in workwheels until each animal could run continuously at speeds of 1.0 mph for 30 minutes, 1.33 mph for 25 minutes, and 2.0 mph for 5 minutes. The findings of this study revealed that rectal temperature increased and stabilized at levels that were proportional to the speed of running, with the exception of the most strenuous work load which caused a continuous increase in rectal temperature to the point of exhaustion. Rectal temperatures reached during the 2.0 mph work load were found to be indicative of severe exercise for these animals. Trends of the pre-exercise temperatures indicated the animals had developed an anticipatory response to the exercise.

670. LONG, Pamela E. The use of the Exer-Genie in the development of elbow flexor strength. M.S. in Physical Education, 1967. 26 p. (D. A. Coleman)
The experimental group participated in a progressive resistive exercise program utilizing the Exer-Genie. With the exception of the exercise periods for the experimental group both groups of secondary school girls engaged in the same rhythmical activities. Clarke's cable tension test for elbow flexor strength was administered on the initial and final strength test. The results of this study revealed a significant difference in elbow flexor strength of both the left and the right arms of the girls participating in the Exer-Genie program.

671. MAKINI, George K. A statistical analysis of physical education classes for male freshman at Washington State University. M.A.T. in Physical Education, 1967. 30 p. (R. H. Doornink)
After 552 male freshman students were given the Cougar physical fitness test at the beginning of the semester, those students judged as "low-fit" were placed in a circuit-training program where they were given a vigorous exercise program. The remainder of the students were allowed to select certain vigorous activities, including boxing, gymnastics, soccer, weight lifting, wrestling. Results of the study were that the circuit-training program which was given to the "low-fit" students was successful in raising the physical fitness of these students; and the background of physical education activities and native abilities of the students appeared to have a significant influence upon the activities chosen by the physically fit students, as indicated by the fact that the individuals who were strongest in the legs chose weight lifting and soccer, while those strongest in the arms chose gymnastics.

672. MANN, Rollis J. An investigation of the relationship between the return-to-normal vital capacity test and the Balke cardiorespiratory test. M. S. in Physical Education, 1967. 41 p. (K. A. Penman)

The Balke cardiorespiratory test was used as a valid and reliable means of measuring cardiorespiratory fitness. The return-to-normal vital capacity test was devised by this investigator as a means of measuring cardiorespiratory fitness. Results on 30 ninth grade subjects showed that although the return-to-normal vital capacity test was reliable, it was not a valid measure of cardiorespiratory fitness.

673. MORRIS, Nancy J. Effectiveness of distributive practice on underhand volleyball serve skill achievement and retention. M. S. in Physical Education, 1967. 56 p. (R. C. Wiley)

The subjects were 80 seventh and eighth grade girls who were divided into 3 equated groups on the basis of the best score of 2 initial serve tests. Group I practiced on Monday through Friday, group II, on Monday, Wednesday, and Friday, and group III on Tuesday and Thursday. During each of the practice sessions, the subjects served 10 balls each, until, at the conclusion of 8 sessions, 80 serves were completed. Analysis of the results showed that no one pattern of distributed practice significantly affected the skill achievement or the retention, as measured 9 weeks later, of the underhand volleyball serve.

674. PLANKEY, John. Perceptual motor training in the public school. M. A. T. in Physical Education, 1967. 48 p. (R. H. Doornink)

Thirty-five school districts in 19 states conducting perceptual motor programs were located. An analysis of data received indicated that physical education personnel including specialists, supervisors, and directors have been influential in initiating programs of perceptual motor development; although a multidiscipline approach is generally utilized in conducting perceptual motor programs, the physical educator plays a prominent role; it would appear that most of the school districts involved are providing perceptual motor training for large groups of kindergarten and first grade children; most perceptual motor programs were experimental in nature; and twenty-one (60 percent) of the districts are planning statistical studies of the effects of their training programs.

675. SOULE, Roger G. The effect of adrenalectomy on glycogen mobilization during exercise. Ph. D. in Physical Education, 1967. 109 p. (P. D. Gollnick)

Seventy-two young male albino rats with average beginning body weights of 203.6 grams were used as subjects. One-half of the exercised animals were killed immediately upon completing a run to exhaustion in a motor driven treadmill. At sacrifice the liver and skeletal muscles, biceps, and gastrocnemius of the left side were quickly removed and samples taken. The spleen, heart ventricles, kidneys, and adrenals, when present, were quickly removed and weighed. The glycogen content of the liver, biceps, and gastrocnemius were determined. There were increases in actual and regressed adrenal weights ($P>0.01$) after the animals participated in the exercise program. There were decreases in the regressed spleen weights ($P>0.01$) after the animals ran to exhaustion. Blood glucose levels of the animals that had exercised to exhaustion on the day of sacrifice were significantly lower than the non-exercised animals ($P>0.01$).

676. TAYLOR, Albert W. The role of the adrenergic mechanism in free fatty acid mobilization during exercise in the rat. Ph. D. in Physical Education, 1967. 126 p. (P. D. Gollnick)

In the first of 3 experiments, 72 rats were allotted to a control group of

24 rats and an exercise groups of 48 rats. One-half of the controls and one-half of the group to be exercised were adrenalectomized (ADX). The effects of hexamethonium, a ganglionic blocking agent, on the plasma and adipose tissue free fatty acids (FFA) levels and the in vitro release of adipose tissue FFA of control and exercised animals were tested. In the third experiment, the effects of intravenous injections of reserpine, a sympathetic nervous tissue depletor of norepinephrine, upon the three measures of FFA mobilization were determined. The spleens, biceps, and adrenals of the normal animals trained to run were larger. Adrenalectomy significantly increased the resting plasma FFA levels and in vitro release of FFA from adipose tissue of control and trained ADX animals. After exhaustive exercise, the plasma and adipose FFA and in vitro release of FFA were increased over resting FFA values for both the normal and ADX groups.

677. WALTON, Barbara L. Cardiovascular response to a submaximal work load during three phases of the menstrual cycle. M.S. in Physical Education, 1967. 61 p. (M. Phillips)
The purpose of this study was to compare the response of women (N=11) to a moderate work load, 5 minutes on a bicycle ergometer at 600 kilopondmeters per minute, during 3 phases of the menstrual cycle: premenstrual, menstrual, and intermenstrual. The responses measured were oxygen uptake during rest and exercise, estimated maximum oxygen uptake, resting heart rate, heart rate for each minute of a 5-minute exercise, and heart rate for each minute of an 8-minute recovery. The open circuit technique of indirect calorimetry was used with gas being collected in a Tissot gasometer and analyzed with a Scholander gas analysis apparatus. Analysis revealed a lower resting oxygen uptake during the intermenstrual phase than during the menstrual phase. All other measurements showed no significant differences.

678. WITHERS, Robert T. The effect of varied weight-training loads on the strength of university freshmen. M.S. in Physical Education, 1967. 45 p. (V. P. Dauer)
The purpose of this study was to investigate the effect of the following combinations of sets and repetitions in a weight training program on the acquisition of strength: 3 groups of 7 maximum repetitions (3 x 7 MR); 4 groups of 5 maximum repetitions (4 x 5 MR); and 5 groups of 3 maximum repetions (5 x 3 MR). The test groups trained solely on the curl, bench press, and squat. Within-group t ratios indicated that all groups registered strength gains that were highly significant. Garrett's analysis of covariance showed that no group attained improvements that were significant over those of other groups.

University of Washington, Seattle, Washington

(M. R. Broer and G. S. Reeves)

679. ALEXANDER, Marion J. L. The speed and accuracy attained by college women in the windmill and conventional methods of softball pitching. M.S. in Physical Education, 1967. 92 p. (M. R. Broer)
Data were obtained from 72 college women. The investigator developed pitching tests to measure speed and accuracy of pitching. The group taught the conventional pitch before the windmill improved in both speed and accuracy of conventional and windmill pitching. The group taught windmill before conventional experienced some loss of speed and accuracy when taught the conventional method of pitching. At this level of skill, learning of the conventional pitch appears to enhance subsequent learning of the windmill pitch, while learning the windmill pitch may interfere with subsequent learning of the conventional pitch.

680. BERENDSEN, Carol A. The relative effectiveness of descriptive teaching and structured problem solving in learning basic tennis skills. M.S. in Physical Education, 1967. 90 p. (K. S. Fox)
Women (N=65) students enrolled in 2 beginning tennis classes served as the subjects. At the end of the instructional unit the skills and knowledge gained were evaluated by means of the Broer-Miller tennis test, the Dyer backboard test, a written examination, and a modified version of the Wear attitude inventory. There were no significant differences between the means of the two groups for any of the skill tests. The problem-solving group was significantly higher on the written test and on the combined t-scores for the written and skill tests.

681. BOHRMANN, Gunter B. The development of a training film and an instructional guide for an advanced routine on the horizontal bar. M.S. in Physical Education, 1967. 102 p. (E. L. Hughes)
A routine consisting of 13 individual stunts was composed by the investigator and questionnaires were sent to 16 internationally successful gymnastic coaches in order to obtain additional information. The resulting film contains 410 feet, approximately 13 minutes of viewing time. An instructional guide including descriptions of the individual skills, lead-ups and spotting methods shown utilizing authoritative texts on advanced gymnastics is also included in the thesis manuscript.

682. BROOM, Eric F. A pilot study to investigate the effects of varying meteorological conditions upon the work capacity of selected athletes. M.S. in Physical Education, 1967. 122 p. (E. L. Hughes)
One training program consisted of progressive interval running twice a week for 8 weeks at sea level; the other group joined the interval running group for one session each week, and for the other weekly session did a progressive interval work task on a bicycle ergometer at a simulated altitude of 12,000 feet. Pre- and post-training tests were made at both sea level and at simulated altitude of 8,000 feet. The marked post-training improvement of one of the 2 subjects who had trained partly under simulated altitude conditions suggests that such a training program could effectively improve subsequent performance at a medium altitude such as Mexico City.

683. BROOMELL, Eileen Williams. The relative effectiveness of two methods of teaching the American crawl stroke to beginning swimmers. M.S. in Physical Education, 1967. 118 p. (M. R. Broer)
Data were obtained from 74 college women enrolled in 4 beginning-elementary swimming classes. All classes received identical instruction except that 2 classes' initial instruction was in the human stroke and the initial instruction of the other 2 classes was in the overarm crawl stroke. It was found that instruction in the human stroke might help nonswimmers swim the crawl stroke and side stroke sooner than initial instruction in the crawl stroke. The advantage of the human stroke was most apparent for those students who exhibited fear at the beginning of the study.

684. BUCHANAN, Kathryn A. A comparison of motor ability and of skill in selected basic activities of twelve- and fifteen-year-old girls participating in physical education in England and the United States. M.S. in Physical Education, 1967. 105 p. (M. R. Broer)
For at least 2 years the American subjects had been participants in a program characterized by a framework of specific games and rhythms whereas the English subjects had received training in fundamental movement without any specific games framework as well as instruction in games. The physical education program, characterized by a framework of specific games and rhythms, apparently could develop more skill in running for speed, jumping for height, throwing for distance, and running

with agility than the program emphasizing the English system of movement education. The 2 programs develop comparable general motor ability and the ability to repeatedly throw a basektball with speed.

685. DAHLGREN, Roy L. An analytical survey of basketball turnovers in the AA Tournament of Washington State, 1963, as they related to winning and losing games. M.S. in Physical Education, 1967. 95 p. (C. L. Peek)
In almost all instances team or individual errors recorded in team statistics were grouped into general categories with little attempt to learn their causes. An attempt was made to identify and categorize the specific errors made in tournament play so that coaches could anticipate these weaknesses and take appropriate action.

686. DENVER, Thomas HR. The use of photography in coaching college crew. M.S. in Physical Education, 1967. 90 p. (C. L. Peek)
Questionnaires were submitted to college crew coaches. It was found that every school made some use of photography in coaching crew. A variety of equipment was used, with 16-mm motion picture systems being most common. It was concluded that photography was valuable in coaching crew and that a comprehensive photography program could be set up at a reasonable cost.

687. DINSMOOR, William G. An evaluation of the effectiveness of the use of instructional films of neuromuscular control. M.S. in Physical Education, 1967. 40 p. (C. A. Mills)
During the study 2 groups of high school students received the same oral instruction and demonstration. However, the control group viewed films not related to volleyball while the experimental group viewed films depicting the overhand volleyball serve. The difference between the group means on the volleyball serve test was not statistically significant. These results would seem to support the view that audiovisual films are limited as to their effectiveness in skill development.

688. EGGERICHS, James M. An evaluation of the performances of ROTC cadets in the U.S. Army physical combat proficiency test. M.S. in Physical Education, 1967. 152 p. (J. A. Torney)
The physical combat proficiency test (PCPT) was administered to 1,333 cadets at summer camp during the third and fourth week of training. It was found that the cadet norms were significantly higher than the Army norms; that there was low, positive coefficient of correlation (.273) between the horizontal ladder scores and the pull-up scores; and an increased-increment scoring scale was constructed. The researcher recommended that the Army either develop new norms for cadets or raise the minimum level of acceptance for cadets on the standard norms; that the horizontal ladder event of the PCPT be retained; that the Army investigate the advantages of the increased-increment scoring scale; and that additional research be conducted on the PCPT.

689. EIDE, Gary Ray. The effects of interscholastic football participation on the performances of junior high school boys in physical fitness tests. M.S. in Physical Education, 1967. 80 p. (C. L. Peek)
Physical [illegible] results of a control group enrolled in a daily program of physical education were statistically compared with test results of an experimental group composed of eighth and ninth grade boys participating in a football program as well as daily physical education classes. With the exception of pull-ups, both groups showed gains in physical fitness; but based on the statistics of this study, football as an added activity did not significantly increase the physical fitness of those participating in that program during the period of this study.

690. ERICKSON, Roger D. An analytical survey of shot putting techniques and training methods utilized by selected collegiate track coaches. M.S. in Physical Education, 1967. 86 p. (C. A. Mills)
Only those coaches who had a shot putter qualify for the National Collegiate Athletic Association Track and Field Championships of 1966 or who had a putter put 56 feet or more during that season were included in this study. Questionnaires were sent to 32 coaches, of whom 27 responded. The coaches used techniques and training methods which were similar. All coaches had the putters participate in a pre-season conditioning program and lift weights, and most coaches had the putter participate during the indoor season.

691. FREYTAG, Janet Geiger. The relationship of rhythmic ability and background in dance and music to racial and socio-economic background. M.S. in Physical Education, 1967. 84 p. (M. R. Broer)
Data were obtained from 84 Caucasian, Mexican, Negro and Oriental girls enrolled in 15 physical education classes at a large California high school. A socio-economic background questionnaire, Ashton's gross motor rhythm test, and Barnard's rhythmic background questionnaire were administered. While the high socio-economic group was found to have had more experience in dance and music than the low group, rhythmic ability did not appear to be related to socio-economic status. The relationship of music and dance background to rhythmic ability appeared to vary with socio-economic status, being substantial for the middle, slight for the low, and none for the high socio-economic groups. Within the limits of the backgrounds of these subjects, extremes in background appeared to influence rhythmic ability.

692. GASSON, Ivo S. H. An experiment to determine the possible advantages of utilizing instant television for university instruction in badminton classes. M.S. in Physical Education, 1967. 56 p. (J. Torney, Jr.)
The 43 subjects for the study were members of two coeducational badminton classes at Simon Fraser University, Burnaby, British Columbia, Canada. The control class received conventional instruction. The experimental class members received the same instruction, but were allowed to see their recorded performances on videotape as the instructor commented. Although both classes improved significantly in their badminton playing ability, as measured by the Miller badminton wall volley test, the results clearly establish that no significant difference existed between the initial, final, and improvement scores of both classes.

693. GLOSUP, Barbara E. Effects of a unit in apparatus instruction on selected elements of physical fitness of high school girls. M.S. in Physical Education, 1967. 90 p. (M. R. Broer)
Two apparatus classes constituted the experimental group, and one lecture-discussion driver education class constituted the control group. Squat-thrusts, toe touch, bent arm hang, Bass balance, curl-ups, and Illinois agility run tests were administered to both groups prior to and at the conclusion of the apparatus instructional unit. The results indicate that apparatus instruction, regardless of the amount of apparatus skill developed, is effective in increasing general physical fitness, and specifically, endurance, arm and shoulder and abdominal strength.

694. GOLDSTEIN, Norman. Techniques utilized to determine basketball ability for selecting high school sophomore players. M.S. in Physical Education, 1967. 99 p. (C. A. Mills)
The three categories of emphasis used to select sophomore teams were objective tests without ball, objective tests with ball, and subjective observations. It was found and substantiated by the answers to a

questionnaire that 10 of 14 coaches placed their emphasis on subjective observations as a primary means of selection. It was also found that coaches of the sophomore teams with the best win-loss records over a 3-year period, used in the study, emphasized the subjective observations as primary means of selection of sophomore basketball players. Objective tests with ball were emphasized as the next best method of selection.

695. HEWITT, Lynn R. The history of intercollegiate football at the University of Washington from its origin through 1965. M.S. in Physical Education, 1967. 236 p. (E. L. Hughes)
The material lends itself to 3 major divisions. They are: (1) the history of football at the University of Washington from 1889 to 1916, (2) the history of football at the University of Washington from 1917 to 1941, and (3) the history of football at the University of Washington from 1942 to 1965.

696. INABA, Gilbert Y. The effects of a fifteen-week conditioning program upon the physical abilities of selected high school wrestlers. M.S. in Physical Education, 1967. 109 p. (J. A. Torney)
The purpose of the study was to determine the effects of a 15-week special conditioning program upon AAHPER youth fitness test scores, and upon treadmill ergometer scores of selected high school wrestlers. A significant (.05 level) improvement was obtained in the performances on the treadmill test, and, in general, the wrestlers improved significantly in their AAHPER youth fitness test scores as a result of training in the wrestling program.

697. LESLIE, Janice J. The effect of music on the development of speed in running. M.S. in Physical Education, 1967. 66 p. (K. Fox)
Running was taught to 91 seventh grade girls as a major part of a 12-day track and field unit. No significant differences were found between groups with and without a background of musical instrument instruction in the pretest or in the post-test. When the mean improvement scores for each group were calculated it was found that all groups improved significantly regardless of musical background or whether or not music accompanied the learning. No significant differences were found among improvement means.

698. NIBLOCK, Marjoie W. Personality traits and intelligence level of female athletes and nonparticipants from McNally High School. M.S. in Physical Education, 1967. 111 p. (B. J. Purdy)
In order to ascertain differences in personality, 92 high school girls of whom equal numbers had or had not played on interscholastic teams, were given the Guilford-Zimmerman temperament survey. Intelligence scores, based on either the Otis quick-scoring mental ability test or the Lorge-Thorndike intelligence tests, were obtained. When the mean scores of the total athlete and nonparticipant groups were compared, significant differences, in favor of the athletes, were found for 4 of the personality variables: general activity, ascendancy, sociability and emotional stability. When mean scores for intelligence were compared, the nonparticipants who were assessed by the Lorge-Thorndike intelligence tests were found to be significantly superior to the athletes.

699. OKERMAN, John L. The effects of a period of nontraining on the physical fitness of selected University of Washington males. M.S. in Physical Education, 1967. 116 p. (G. S. Reeves)
Two physical education calisthenics classes were given physical fitness tests at the beginning, middle, and end of a 10-week conditioning

program. Following a 2-week period of nontraining the subjects were retested to determine the possible loss in physical efficiency. Results showed subjects improved significantly in cardiovascular efficiency, strength, trunk extension, and shoulder flexibility during the conditioning program. During the nontraining period cardiovascular efficiency, shoulder flexibility, and lower back strength deteriorated to a pretraining level, while upper leg strength and weight increased significantly.

700. PRICE, N. Gary. The relationship of college football players' strength, speed and agility to the coaches' rankings of ability. M.S. in Physical Education, 1967. 51 p. (C. L. Peek)
Playing positions were combined into offensive backs, defensive backs, offensive linemen, defensive linemen and into whole group units. The players were further divided as to Group I or Group II. Correlations were then computed between the objective test scores and the coaches' subjective evaluations. It was concluded that arm strength and agility were not valid predictors of football ability; total strength and total T-score were moderate predictors of football ability; and leg strength and speed were significant predictors of football ability.

701. RUSSELL, Marilyn R. E. Effectiveness of problem solving methods in learning a gross motor skill. M.S. in Physical Education, 1967. 94 p. (M. R. Broer)
This study sought to determine the relative effectiveness of 3 teaching methods (traditional explanation and demonstration with focus upon the movement pattern of the demonstrator; problem solving with focus upon discovery of the mechanical principles applied to the skill; and traditional) in the learning of the windmill serve in volleyball. Women physical education majors (N=55) were randomly assigned to 3 groups. The differences between groups on the final test were not significant. However, it was found that the improvement of both problem-solving groups was significant at the 1 percent level, while the improvement of the traditional group was not significant.

702. RYAN, Thomas Michael. A survey of present practices and opinions relative to Washington State certification of recreation personnel. M.S. in Physical Education, 1967. 128 p. (F. Kunde)
Answers were obtained to questions concerning the formulation of a legislative bill for certification of Washington State recreation personnel. The study also includes a brief history of the recreation movement in the United States, explains the procedures involved in completing this investigation and offers appropriate summaries and conclusions from which recommendations are made relative to the matter of state certification of recreation personnel.

703. SNYDER, Mary Lou. Optimum pedal speeds and submaximal loads for bicycle-powered machines. M.S. in Physical Education, 1964. 136 p. (M. R. Broer)
Subjects were 7 college women between the ages of 20 and 34. Ventilation, oxygen intake and pulse rate when performing work loads of 0, 500, 1000, 1500, 2000, and 2500 ft. lbs/min. with pedal speeds of 20, 30, 40, 50, 60, and 70 RPM were measured. The work programs consisted of 15 minutes of work and 5 minutes of recovery. The results indicated that in general, for each pedal speed, the oxygen intake, ventilation, and pulse rate increased with an increase in work load. The optimal pedal speed for subjects when performing at the work load of 1500 ft. lbs./min. appeared to be 60 RPM with an optimal range from 40 to 70 RPM. An optimal range from 40 to 60 RPM was found for the work loads of 2000 and 2500 ft. lbs./min. and 60 RPM seemed to be the best speed at the work load of 2500 ft. lbs./min.

704. SULLIVAN, James A. The development of a training film on the parallel bars for competitive high school gymnasts. M. S. in Physical Education, 1967. 71 p. (E. L. Hughes)
A questionnaire was sent to selected high school gymnastic coaches to determine parallel bar stunts presently being accomplished in the state of Washington on the junior varsity and varsity level of competition. Two routines were formed from the results of the questionnaire, a junior varsity and varsity routine. An instructional guide was developed, describing the individual stunts, their lead-up stunts, and spotting techniques.

705. THOMAS, Carolyn E. A comparison of the degree of creativity of highly and average-skilled college women dancers and highly and average-skilled college women athletes. M. S. in Physical Education, 1967. 85 p. (M. R. Broer)
Sixteen average-skilled dancers, 15 highly skilled dancers, 17 average-skilled athletes, and 18 highly skilled athletes from selected colleges and universities in Idaho and Washington were used in the study. The Minnesota test of creativity was scored for the creativity factors of originality, flexibility, and total creativity. Analysis of variance for each of the creativity factors indicated that none of the differences among the 4 groups was significant. The dancers were more homogeneous in their responses than were the athletes. The major finding was that college athletes and college dancers, regardless of skill level, do not differ in creative thinking abilities.

706. VAUGHAN, John Patrick, Jr. Faculty utilization of recreational sports facilities and physical conditioning services at the University of Washington. M. S. in Physical Education, 1967. 122 p. (C. L. Peek)
Data were gathered from a questionnaire which was sent to 425 randomly selected faculty members at the University of Washington. The following results were derived: vigorous sports were the most popular activities; faculty members preferred to use the campus facilities on an informal, individual-use basis as opposed to organized group participation; physical benefits were a more powerful motivating factor in causing male faculty members to utilize the campus facilities than either mental or social reasons; and faculty member who utilized the campus recreational sports facilities at the University of Washington did so on at least a weekly basis.

707. WORRALL, Don W. An analysis of the progressive performance of selected male high school students on the AAHPER youth fitness test at Shoreline High School from 1963-66. M. S. in Physical Education, 1967. 667 p. (C. A. Mills)
The AAHPER youth fitness test was administered to 56 boys 6 times during the fall and spring from 1963 to 1966. Subjects were grouped into a low, middle or high fitness group. The physical education program included a wide variety of activities and was participated in daily by all students for all 3 years. Significant gains in physical fitness, as measured by the national norms, were evident in each group when the initial and final test results were compared.

708. YORK, Charolette J. A comparison of aptitude and achievement of physical education majors and nonmajors in teacher education. M. S. in Physical Education, 1967. 68 p. (B. J. Purdy)
Data were obtained from 109 women physical education majors and 118 women majoring in other branches of teacher education who graduated from the University of Washington during the school years 1957 through 1966. It was found that: women physical education major students have

aptitude for and achievement in scholastic work comparable to other women students in teacher education; women physical education major students have aptitude for and achievement in scholastic work comparable to women students who major in art, English, history, home economics, and sociology; and a substantial relationship exists between high school grade-point averages, ACE scores, and accumulated grade-point averages.

Wayne State University, Detroit, Michigan (P. Berlin)

709. COX, Jacquelyn M. Job satisfactions of women secondary school physical education teachers. M. Ed., 1967. 130 p. (P. Berlin)
A questionnaire consisting of 25 items pertaining to selected job factors was developed and mailed to 73 women subjects. A 68 percent return revealed that respondents have a high degree of job satisfaction. Factors from which most satisfaction is derived are: relations with students, school assignment, relations with co-workers, feeling of accomplishment and opportunities to do "things you feel you do best." Least satisfaction is derived from: 3-year-transfer-rule, compensations for coaching, comparison of salary with other occupations, helpfulness of supervision, and time spent in performing school duties. It was concluded that job satisfaction was not related to age, marital status, length of service, salary or class size.

710. MORIARTY, Richard J. A practical plan for developing university physical education facilities: A case study at the University of Windsor. M. Ed., 1966. 196 p. (R. C. Havel)
This research presents a case study of a situation in which the development of physical education facilities is described from its very beginning to completion. The growth trend and relationship of history and philosophy of education at The University of Windsor is described in relation to the increased emphasis on physical education. Materials are of a descriptive and technical nature, and in some instances, prescriptive suggestions are offered. The survey check list, template, and floor planning kit are forwarded as original facility planning tools. Special attention is drawn to the appendices which contain valuable details of specialized areas and also financial factors.

711. PENMAN, Mary M. An adaptation of Wear's physical education attitude inventory for inner-city junior high school girls. M. Ed., 1967. 92 p. (E. Gerber)
A 30-item instrument, adapted from the Wear 40-item short form inventory was developed. It was administered to 204 girls enrolled in 2 inner-city junior high schools in Detroit. Raw scores were computed by totaling responses on a 5-point rating scale. Reliability, as determined by the split-halves technique and the Spearman-Brown formula, was .92. Validity was determined by correlating inventory scores with a graphic self-rating scale, yielding a coefficient of .64.

University of Western Ontario, London, Ontario, Canada (G. A. Paton)

712. GOLLERT, Norman D. The effects of exercise on low-skill work capacity of mentally retarded children. M.A. in Physical Education, 1966. 105 p. (F. S. Hayden)
Using 7- to 17-year-old children, four matched groups of trainable mentally retarded children were tested on a battery of 8 physical fitness items and on the laborimeter. Each group was then subjected to a different experimental treatment. From the beginning to the end of the experiment

the control group (Group I) improved their laborimeter scores by 19 percent; the exercise group (Group II) by 37 percent; the laborimeter practice group (Group III) by 47 percent; and the laborimeter practice and exercise group (Group IV) by 64 percent. Groups II and IV made significant improvements on 4 physical fitness test items. By contrast the nonexercise groups (I and III) made significant improvements in only one item - total strength.

713. HOLOMEGO, Helen J. A grade thirteen course of study for girls' physical education in Ontario. M. A. in Physical Education, 1965. 194 p. (W. J. L'Heureux)
The course of study was developed from ideas and opinions solicited, by questionnaire and interview, from the 11 administrators of the physical education departments of Ontario universities, and was revised in accordance with suggestions received, by questionnaire and interview, from a selected sample of 14 qualified, experienced secondary school teachers (women), located in various parts of the province. An attempt was made, in drawing up the course of study, to follow the present trend in curriculum development of emphasizing the understanding of concepts and principles.

714. KEYES, Mary E. John Howard Crocker LL. D. 1870-1959. M. A. in Physical Education, 1964. 163 p. (F. J. Hayden)
Background information was obtained regarding John Howard Crocker's association with the following organizations: the YMCA of Canada and China, the Royal Life Saving Society of Canada, the AAU of Canada, and the University of Western Ontario. A comprehensive examination was made of the minutes of the Physical Directors' Society of the YMCA, the annual reports of the RLSS and the AAU covering the period from 1876 to 1963, and the presidential reports of the University of Western Ontario. Dr. Crocker's personal file of correspondence, his diary, his personal notebooks, and the volume of letters from the Physical Directors' Society of the YMCA were studied.

715. McPHERSON, Barry D. Psychological effects of an exercise program for postcardiac and normal adult men. M. A. in Physical Education, 1965. 239 p. (M. S. Yuhasz)
Before and after a 24-week program of graduated exercises, psychological tests were administered to experimental and control groups of cardiac and normal adult men. The intergroup comparison at the beginning of the program indicated that some of the personality characteristics of the postcardiac subjects were significantly different from those of the noncardiac subjects. After 24 weeks of exercise, the cardiac exercisers experienced a greater number of favorable changes in personality characteristics than the other 4 groups. The normal exercisers experienced little psychological change compared with other groups.

716. SHARRATT, Michael T. Comparison of the Monark and Elema bicycle ergometers with adolescents in terms of physical work capacity. M. A. in Physical Education, 1966. 151 p. (M. S. Yuhasz)
Twenty males and 20 females, ranging in age from 13 to 17, performed the Sjostrant test on either the Monark (friction-type) or Elema bicycle (electromagnetically controlled) ergometers. The test consists of riding a bicycle ergometer for three consecutive 6-minute periods with an increased work load during each period. In almost all cases, higher values for predicted physical work capacity at heart rate 170 and predicted maximal oxygen consumption were obtained on the Monark bicycle. Although the bicycles were significantly different, correlation coefficients indicated that the degree of relationship between the bicycles was very high. There

was a low correlation between heart rate and oxygen consumption at specific submaximal levels. However, when progressive work loads were utilized with a homogeneous group, high correlations resulted.

717. SUTHERLAND, Donald A. Effects of isometric training upon strength, muscular endurance, and integrated electrical activity of the elbow flexor muscles of college men and women. M.A. in Physical Education, 1967. 175 p. (M. S. Yuhasz)
A total of 20 males and 20 females, aged 20 to 27, were selected as subjects on the basis of homogeneous strength scores as determined by a simple screening test utilizing the Clarke cable tensiometer. Subjects were, with one exception, assigned to either an experimental or a control group for each sex. A daily training session consisted of exerting 3 6-second maximum elbow flexor contractions against an anchored tensiometer cable. An isometric muscular endurance item was added to this method of training. Both groups significantly improved their elbow flexor strength and endurance over the 6-week period. A high positive relationship was found to exist between muscular strength, fat-free muscle girth, and medial muscle area. No statistically significant changes were indicated in the integrated electrical responses to exercise or in the development of the unexercised limb.

718. THOMSON, John M. The cardiopulmonary effects of exercise on normal and postcardiac adult males. M.A. in Physical Education, 1966. 164 p. (M. S. Yuhasz)
Under the auspices of the National Fitness and Amateur Sports Council of Canada, an interdisciplinary study was undertaken to investigate the physiological, psychological, biochemical and functional effects of exercise on patients with healed myocardial infarctions and on clinically healthy males. Thirty post-cardiac and 30 clinically healthy subjects were divided into 6 groups, 10 subjects per group. Four groups (2 cardiac and 2 normal) underwent a 24-week graduated exercise program. The two remaining groups (1 cardiac and 1 normal) were the control groups for the cardiac and normal populations. All subjects experienced a significant decrease in pulse rate, minute ventilation, and tidal volume over the exercise program for a given work load on a treadmill walk test. At the initial testing, the cardiacs were found to have significantly higher pulse rates than the normals. This average difference was not significant 24 weeks later. Considering the normal and cardiac subjects together, no significant differences were found between the controls and the exercisers on all cardiopulmonary variables although trends were evident.

Wisconsin State University, La Crosse, Wisconsin (R. W. Batchelder)

719. CULVER, Anna Beth. Walter J. Wittich: Physical education 1885-1953. M.S. in Physical Education, 1967. 219 p. (E. Gershon)
The career of Walter Wittich was in great measure the motivating influence which brought the Division of Health, Recreation and Physical Education at what is now Wisconsin State University-La Crosse to its position of national prominence. Under Wittich's directorship, the programs at La Crosse were characterized by their reliance on fundamental training in gymnastics and sports activities, the subordination of athletic competition to the purposes of physical education, and the instilling of truly professional attitudes and competence in students training to be teachers of physical education. The impact of his career was felt by his students, the college, the community, and the profession generally, and is exemplary of the contributions of a dedicated physical educator.

720. RICHARDSON, Ronald L. The effect of intensity and frequency of various training schedules on running performances. M.S. in Physical Education, 1967. 70 p. (R. Hardy)
The investigator used 280 male sophomore high school physical education students as the subjects of this investigation. All of the training groups had a significant mean gain over their initial measurement. There was a significant difference between the mean gains of the two control groups and nine of the experimental groups. Running performances were found to be improved during the first 6 weeks of training as well by a 3-day-per-week practice schedule as by a 5-day-per-week practice schedule.

721. WARNER, Terry R. A study of the effectiveness of three racing starts in swimming. M.S. in Physical Education, 1967. 57 p. (D. Wille)
The 3 starts compared were: (1) arms back, (2) arms down, and (3) arms front. The 39 subjects used for the study were those enrolled in 3 advanced beginning swimming classes. The subjects were taught the start assigned to their swimming class in 4 weeks with a total of 8 practice sessions. The film of the three starts executed in class was analyzed on a stop-action Bell and Howell projector. Results show the arms-front start and the arms-down start to be superior to the arms-back start in reaction time and time to the water. No significant difference among the three starts was found in the time it took the swimmer to reach the finish line. A review of the research study film shows that angle of entry into the water and the position on entry probably accounted for this determination.

University of Wisconsin, Madison, Wisconsin (J. G. Wolf)

722. BOUCHER, Jean-Louis. Physical education in a bicultural society: The characteristics of school physical education programs as a function of the social values held by the two major ethnic groups in the City of Montreal. M.S. in Physical Education, 1967. 240 p. (G. S. Kenyon)
The purpose of the study was to determine the degree to which values held by 2 ethnic groups, namely, French-speaking Catholics and English-speaking Protestants, have influenced their respective physical education programs in the city of Montreal. Differences were found in educational philosophy, in administrative provisions for physical education programs, and in the programs themselves as they appeared over the years. Such differences could be explained at least in part by differences in values held by the 2 groups.

723. BRENNAN, Mary Alice. A comparative study of skilled gymnasts and dancers on thirteen selected characteristics. M.S. in Physical Education, 1967. 133 p. (M. R. Liba)
Thirteen tests were administered to 18 subjects in each group to measure strength, kinesthesis, balance, flexibility, rhythm, and motor performance. A multivariate discriminant analysis was applied to determine whether or not 4 groups (skilled gymnasts, skilled dancers, skilled sport participants, and untrained) could be distinguished from each other on the basis of the measurements. The results established that the 13 variables serve to discriminate the 4 groups from each other but not to the same degree. The gymnastic and dance groups are related to each other but not to the other 2 groups. The sports-proficient and untrained groups are clearly defined and each shows little relationship to the other 3 groups.

724. BROADHEAD, Geoffrey D. An assessment, at various levels of ability, of the respective contributions of stroking ability and

physical condition to the outcome of a game of squash rackets. M.S. in Physical Education, 1967. 92 p. (Marie R. Liba)
Thirty-nine of the most successful squash rackets players in the United States were tested on 2 physical performance tests, the Broadhead rebound test and the Medical Research Council (Fletcher) step test. The players were grouped according to procedures used by the Seeding Committees at the U.S. Open Championships, January, 1966, and at the U.S. National Singles, Doubles and Veterans Championships in February, 1966. The players present were grouped into nationally seeded players, nationally ranked but unseeded players, and unranked players. The conclusions were that the Broadhead rebound test and the Medical Research Council step test discriminate levels of top class squash rackets playing ability.

725. COWAN, Karen L. A study and analysis of a step-hop-turn. M.S. in Physical Education (Dance), 1967. 106 p. (M. Fee)
The study presents: a discussion of abstract terminology necessary for specific description of bodily action, a film analysis of the significant positions of the supporting body structures during the execution of a step-hop-turn; and a descriptive summary of the action events derived from the series of positions in accordance with the discussion relative to the abstracted information.

726. COWMEADOW, Marjorie. A comparison of bilateral muscle patterning and stability in the performance of the prone-lying headstand. M.S. in Physical Education, 1967. 59 p. (J. C. Waterland)
The results were based on 6 experimental sessions involving a total of 323 photographs and 36 electromyograms of the prone-lying headstand as performed by 6 subjects of varying skill levels. The muscular activity was bilaterally recorded from 6 muscles of the arm and trunk musculature through bipolar surface electrodes. One plane serial photograph taken automatically, every two seconds, recorded the execution of the movement in the sagittal plane. The movement sequence was performed on center-of-gravity apparatus to register the subject's weight distribution during the performance of the prone-lying headstand. It was found that the bilateral muscle patterning of the prone-lying headstand was repeatable within the 6 trials for each performer. It was asymmetrical in the performance of a "symmetrical" skill, the prone-lying headstand.

727. DOUDLAH, Anna M. The perceptual-motor performance of kindergarten children with low scores on selected physical tasks. Ph.D. in Physical Education, 1967. 136 p. (L. E. Halverson)
The revised perceptual-motor function battery designed by Ayres was administered to 30 kindergarten children, with subjects chosen from a group of low performers on a 7-item motor battery. Specific comparisons were made between boys and girls; an upper and lower group within the low performers; and the total group of subjects and the standardization populations used to substantiate the items in the Ayres battery. Statistical analyses indicated significant differences between the various groups in some areas, such as motor performance, form constancy, position in space, spatial relations, graphesthesia, and bilateral motor integration.

728. HARRIS, Margaret L. A factor analytic study of flexibility. Ph.D. in Physical Education, 1967. 137 p. (M. R. Sloan)
Of 53 variables included in the major analyses, 38 were measures of joint action, 13 of composite measures, and 2 of anthropometric measures. Subjects were 147 college women selected at random. A major conclusion was that there was no evidence that flexibility exists as a

single general characteristic within the human body. Thus, no one composite test or no one joint action can give a satisfactory measure of flexibility characteristics of an individual.

729. HENRICI, Ronald C. A cinematographical analysis of the center snap in the punt formation. M.S. in Physical Education, 1967. 80 p. (K. Stoedefalke)
Eight body segments were cinematographically studied on 3 former University of Wisconsin football centers. Surface electrodes from a "control release indicator" and a football with silver-impregnated paint were used to determine the instant that the subject lost control of the football. Films were taken at 64 frames per second. Conclusions were that the trunk and lower extremities were not major contributors to the linear velocity of the football in the center snap in the deep punt formation; the hand was the major contributor to the vertical component of the linear velocity of the football; and the forearm was the major contributor to the horizontal component of the linear velocity of the football.

730. HOWLEY, Edward T. A study of the second-wind phenomenon. M.S. in Physical Education, 1967. 87 p. (F. J. Nagley)
Twelve subjects, 4 trained and 8 untrained, were pretested with the Balke work capacity test to estimate each subject's maximal oxygen uptake. Physiological parameters were measured for 10 continuous 30-second periods. The time of onset of second wind was recorded whenever the phenomenon was perceived. In general, there were no significant differences ($P > .05$) in the response patterns between these groups in the physiological parameters measured (volume of oxygen consumed, volume of carbon dioxide expired, respiratory exchange ratio, tidal volume, respiratory frequency, and heart rate). There were also no significant differences in response patterns between the trained and untrained groups experiencing second wind.

731. KARST, Ralph R. The development of standards for potential achievement in physical education. Ph.D. in Physical Education, 1967. 461 p. (L. A. Larson)
The study was divided into 8 subproblems (boys and girls in grades 3, 6, 9, and 12) and included 29 measures on 456 children. The method was, first, to establish a qualitative curriculum framework through extensive pilot work and then to quantify this framework. The second step was to develop the theory that certain factors can be used to project potential achievement. Mean scores were converted to z-scores for each of three levels of achievement (upper 25 percent, middle 50 percent, and lower 25 percent). Potential mean scores for each of 19 curriculum qualities were established at each of the 3 levels of achievement. Validation of the potential achievement levels was strongly established through the application of the *t* test in which a 3-way test was devised for each potential level of achievement.

732. KERR, Barry A. Weight and velocity factors in kinesthetic learning and transfer of training. Ph.D. in Physical Education, 1967. 147 p. (G. L. Rarick)
In both practice and transfer tasks each subject performed a horizontal arm adduction movement through a range of 105 degrees, attempting to approximate a pre-established linear velocity. Performance on both the initial and transfer tasks was conducted through the nonvisual, kinesthetic medium. Eighty subjects were randomly assigned to 4 conditions in which load and velocity of movement were varied. The conclusions indicated: weight was not a factor influencing reproducibility of movement in a simple motor task; performance was more accurate when the faster velocity is approximated, a finding which occurred on

both the initial and transfer tasks; and no velocity-weight combination was consistently better than any other in training for transfer.

733. KLINGBEIL, Jerrold L. Athletic participation and the academic success of college freshmen. M.S. in Physical Education, 1967. 86 p. (J. G. Wolf)

Athletes (N=222) were paired with a comparable number of nonathletes on ACT composite testing, high school rank, and school or college of initial registration. The conclusions of the study were: student athletes upon entrance to the university are comparable to the general population with respect to academic potential as measured by ACT, HSR, and SAT scores, but there were significant differences between academic qualifications of the various sport groups; sport groups vary significantly with respect to academic success; the academic success of athletes was a function of academic ability and other related factors, and there was no difference between the academic performance of grant-in aid athletes and nonathletes of comparable ability.

734. KNOWLTON, Elizabeth E. A study to determine the location of peak performance data for college women in three measures of all-out performance. M.S. in Physical Education, 1967. 139 p. (M. B. Liba)

Subjects were college women. Fifteen repeated trials were administered on each of 2 days on tests of grip strength, standing broad jump, and vertical jump. The results suggested that fatigue appears to be a detrimental factor in grip strength performance over a series of extended trials. A learning or practice effect was evident for both the standing broad jump and the vertical jump suggesting that more than 3 trials are necessary for this measure of performance.

735. LOY, John W. Sociopsychological attributes of English swimming coaches differentially adopting a new technology. Ph.D. in Physical Education, 1967. 234 p. (G. S. Kenyon)

The purpose of this investigation was to study the degree and nature of the relationship between certain personal attributes of British coaches and their date of adoption of the controlled interval method of training. Measures of the sociopsychological attributes were obtained from two samples of English male and female swimming coaches using 2 questionnaires developed by the investigator, and Cattell's 16 PF questionnaire (Form A). It was concluded that the differential adoption of CIM is related to educational status, occupational status, professional status, peer status, cosmopolitanism, venturesomeness, imaginativeness, shrewdness, experimentiveness, dominance, perseverance, intelligence, sensitivity, creativity, and self-sufficiency. A substantial proportion of the variance associated with the differential adoption of CIM can be explained by certain clusters of the sociopsychological attributes.

736. LUEBKE, Laura L. A comparison of the effects of varying schedules of mental and physical practice trials on the performance of the overarm softball throw. M.S. in Physical Education, 1967. 187 p. (M. R. Sloan)

Sixty seventh grade girls were randomly selected and assigned to 4 practice groups for 9 days. The schedules of practice were: one, 3 and 6 mental trials alternated daily with the same number of physical trials for 12 completed trials; and 12 physical practice trials daily. A post-test of 10 throws followed the ninth practice day. All time and height measures of the actual throws were converted to measures of velocity, with analyses being made to determine changes in performance level, differences in final performances, or performance gain. Mental practice was as effective as physical practice with the schedules organized on a per-trial basis.

737. McQUIETY, Mary. The effect of rotatory stimulation of the labyrinth on vertical writing. M.S. in Physical Education, 1967. 50 p. (J. C. Waterland)
The effect of rotatory stimulation of the labyrinth on vertical writing of columns was investigated to determine if evoking the vestibulospinal reflex was the only cause of a deviation of columns from the vertical. T. Fukuda's vertical writing test was given to 12 normal subjects. Biplane photographs were taken as Barany chair rotation and vertical writing occurred in order to observe overt patterning in the posture of the subjects. A total of 1548 pictures and 3165 angles of deviation from the vertical were interpreted. Deviation of written columns from the vertical following Barany chair rotation was found to be a result of the vestibulospinal reflex. No direct relationship existed between deviation of columns from the vertical and posture of the subjects.

738. REGER, Joan A. Feeling states evoked by colored lighting. M.S. in Physical Education, 1967. 165 p. (G. S. Kenyon)
Ninety-two male and female college students were exposed in random order to each of 7 different lighting effects which were created by projecting light through gelatin filters onto a blank screen, and also onto a nonobjective metal sculpture placed in front of the screen. Subjects received each lighting effect under each condition, and responded to a 7-point semantic differential scale consisting of 8 pairs of bipolar adjectives. It was found that feeling states are associated with color. The association was not affected by differences in sex, order of color presentation, order of sculpture presentation, nor the presence or absence of the sculpture.

739. REIF, Robert T. An investigation of the effect of a high school wrestling program on cardiovascular performance capacity. M.S. in Physical Education, 1967. 53 p. (B. Balke)
A progressive work load treadmill test and a field test consisting of 15-minute run for distance were administered to 12 high school wrestlers prior to and again at the end of a 16-week training period. The cardiovascular performance of the subjects, as measured in oxygen requirements and external work output, was not significantly changed over the training period. Cardiovascular performance had little effect on wrestling success as measured by the win-loss record.

740. ROSENAK, Elsa. The center of gravity in a handstand. M.S. in Physical Education, 1967. 63 p. (J. C. Waterland)
Scale and segmental methods were used, and data of 3 subjects were recorded by biplane photography. In the scale method the center of gravity was projected into handprints taken during the handstands and the vertical gravity lines were introduced into the photographs. In the standard segmental method the lengths of body segments and the positions of segmental centers of gravity were determined from anthropometric measurements and stick figures of the subjects were plotted to scale on graph paper. It was found that the height of the center of gravity in a handstand fluctuated. Individuals varied as to the location of the frontal gravity plane when they were in equilibrium. The handstands were asymmetrical; there tended to be more weight on the nonpreferred hand.

741. SAFRIT, Margaret J. The structure of selected object-projection skills. Ph.D. in Physical Education, 1967. 170 p. (M. R. Liba)
Three alternate sets of factors were hypothesized on the basis of a logical, a priori analysis. Pattern A represented an obvious a priori classification of the variables by the extremity used in the projection. Pattern B involved a more complicated classification of skill, including overarm, sidearm, underarm, pushing, and striking movements.

Pattern C was classified by these types of projections: striking, releasing, and those involving repeated movements. The 4 factor models selected for analysis of the data included the incomplete principal components solution, Alpha factor analysis, Joreskog's approximation to the maximum likelihood solution, and Model D, which is similar to incomplete image analysis. The results indicated that the original hypothesized sets of factors were an inadequate representation of the skills measured, being almost totally dissimilar to the hypothesized factor patterns. The study also revealed that complexities existed among the overarm-sidearm-underarm skills which needed extensive investigation.

742. SCHRAMM, Virginia. An investigation of the electromyographic responses obtained during mental practice. M. S. in Physical Education, 1967. 68 p. (J. C. Waterland)
Electromyographic records were taken of 12 college women while they covertly and overtly practiced elbow flexion and extension with a 10 pound weight held in their preferred hand. Action potentials were recorded from 8 superficial arm muscles. Verbal, written, and demonstration methods of instruction were utilized to aid the subjects in imagining the task both before and after actual physical experience. The following conclusions were drawn: (1) It appears that during the act of imagining, neuromuscular activity is recorded in those muscles which are concerned with the movement; (2) After an individual overtly experiences a task he is to imagine there appears to be more neuromuscular activity during mental practice than before he physically experiences the movement; (3) During the act of imagining, the demonstration method of instruction appears to be superior in eliciting a greater over-all amount of muscular action potentials than that of written or verbal methods of instruction.

743. SHAMBES, Georgia M. The influence of the gamma motor system on stance and volitional movement in normal man. Ph. D. in Physical Education, 1968. 107 p. (E. M. Roberts)
The purpose of this study was to investigate various parameters of postural and volitional motor performance in lower leg muscles with intact and blocked gamma motor systems. Eleven female volunteers were assigned to two groups. Ten cc. of 1. 0 percent procaine solution was locally infiltrated to the distal portion of the sciatic nerve in the 7 subjects in the anesthetized group and 10 cc. of saline solution was infiltrated to the sciatic nerves of the 4 subjects in the placebo group. Local infiltrations of 1. 0 percent procaine solution produced partial or complete block of the gamma motor system as indicated by the neurological examination results; antero-posterior postural sway is increased following procaine infiltration; amplitude errors during volitional ankle joint movements are more frequent following gamma nerve block; and timing errors during ankle joint volitional movements are more frequent after fusimotor block. Therefore, it would appear from the results of this experiment that the gamma motor system in normal man influences the neurological regulation of motor activity and that it is one of the control systems employed during very fine motor activity.

744. SMITH, Michael D. The development of positions taken by the faculty regarding intercollegiate athletics at the University of Wisconsin: 1873-1925. M. S. in Physical Education, 1967. 164 p. (G. S. Kenyon)
Based upon primary sources, most of which are housed in the University of Wisconsin libraries, various topics were pursued, including: early interest in sport; growth of intercollegiate athletics as a nationwide phenomenon; the role of athletic expansion; factors precipitating increasing faculty control; football reform movement; and athletic de-emphasis, re-emphasis, and growth to big business. The findings showed that the

development of Wisconsin athletics was not greatly influenced by faculty thinking except during the football reform movement of 1906.

745. SOPA, Adeline. Construction of an indoor batting skills test for junior high school girls. M.S. in Physical Education, 1967. 80 p. (M. R. Liba)
The proposed indoor test and outdoor test were administered to 58 seventh grade girls and 58 eighth grade girls. The results of their attempts to hit a ball with maximum force from a batting tee were studied in terms of the initial velocity and horizontal velocity of the ball for 5 consecutive and 5 successful trials. The reliability estimates for the initial velocity and horizontal velocity scoring methods were low and similar.

746. TORKILDSEN, George Edward. Sport and culture. M.S. in Physical Education, 1967. 163 p. (G. S. Kenyon)
The purpose of this study was to examine the role of sport in society, with particular emphasis upon the relationship between sport and cultural expression. The meaning of the concepts "sport" and "culture" was analyzed in an effort to identify the links between sport and cultural expression. It was established that sport, as with the arts, has a distinctive cultural heritage; that play appeared to be the strongest link in the art-sport-culture trichotomy; that aesthetic qualities were recognized as features of cultural expression; and that sport was seen as a means to cultural advancement.

747. WALTNER, Susan. Attitudes toward modern dance among university seniors as a function of social values, academic major, and sex. M.S. in Physical Education, 1967. 117 p. (G. S. Kenyon)
Attitudes toward modern dance were measured in relation to 4 concepts: modern dance as a performing art, as an academic major, the professional female dancer, and the professional male dancer, using a semantic differential inventory. Social values were measured with the Allport-Vernon-Lindzey Study of Values. Identification, observation, and participation in modern dance were measured with a brief questionnaire. Results showed significant positive correlations between attitudes toward modern dance and aesthetic values. Negative correlations appeared between attitudes and economic and political values. Differences were found to exist among groups classified by academic major.

748. WIDDOP, James H. The motor performance of educable mentally retarded children with particular reference to the identification of factors associated with individual differences in performance. Ph.D. in Physical Education, 1967. 227 p. (G. L. Rarick)
A total of 4,406 educable mentally retarded children throughout the United States equally distributed by age and sex were tested. A modified AAHPER physical fitness test battery was administered, homeroom teachers were asked to complete a Cowell behavior trend for each child, and questionnaires regarding home background were sent to parents of children being tested. Both boys and girls at all age levels were substantially retarded in mean performance on all test items in comparison with children of normal intelligence. When classified by age/weight/height, the difference between the performance of normals and that of educables was virtually the same as when comparisons were made on the basis of age only. Sex differences in performance of EMR's were similar to those noted in normal children. Family background and early childhood experiences were related to the performance levels of these children.

749. WRIGHT, Maureen. A center of gravity study in headstand balances. M.S. in Physical Education, 1967. 62 p. (J. C. Waterland)
A total of 740 one-plane serial photographs and electromyographic data,

recorded from 54 headstand trials of 6 skilled gymnasts, were analyzed. All the headstand exercises were performed over base papers on the center of gravity apparatus to allow computation of the frontal plane projection of the center of gravity during each performance. Skilled performers displayed marked consistency of muscle patterning during similar headstand trials. Movement of the center of gravity in the frontal plane was not repeatable among similar trials for the same subjects. The frontal plane projection of the center of gravity fell consistently closer to the head support than to the geometric center of the base in the extended position.

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